JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY

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THE RHODODENDRON YEAR BOOK

1951-52

Among the interesting illustrated articles in this issue of the YEAR BOOK is one on Rhododendrons at Brodick Castle, Isle of Arran, by the Duchess of Montrose and Mr. J. P. T. Boscawen. This describes many of the rare and tender Rhododendrons grown on this island off the West Coast of Scotland. Mr. B. Y. Morrison writes on the Glenn Dale Azaleas, a strain of hardy Kurume Azaleas raised by him in America and Mr. J. C. Wister writes on a new race of hardy Rhododendrons for the East Coast of North America. Other aspects of Rhododendron growing are covered by articles on Rhododendron Bud Blast, and the Leaf Hopper, Rhododendrons as Foliage Plants and Rhododendrons for the Cool Greenhouse. Dr. Cowan and Mr. Davidian continue the revision of Rhododendrons with a paper on the Thomsonii Series and the forms of *R. repens* at Tower Court are discussed by Mrs. R. M. Stevenson and Dr. Cowan. Reports on the Rhododendron Group's activities, awards and description of the Rhododendron Show are also included.

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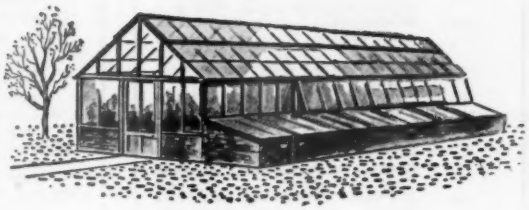

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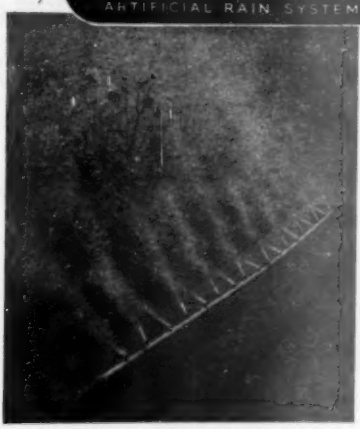

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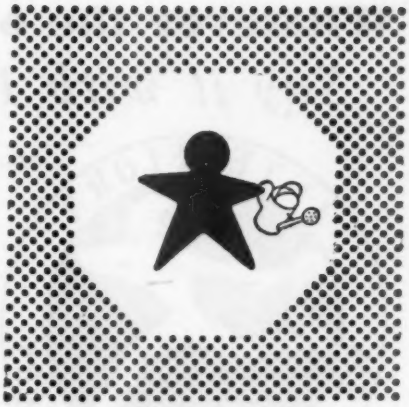

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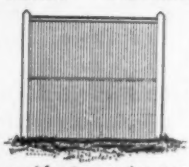

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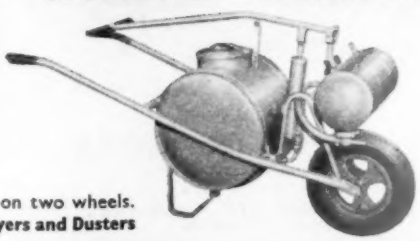

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Extracts from
THE PROCEEDINGS OF
THE ROYAL HORTICULTURAL SOCIETY

GENERAL MEETINGS

JANUARY 29, 1952

SCIENTIFIC COMMITTEE—Mr. E. A. Bowles, M.A., F.L.S., F.R.E.S., V.M.H., in the Chair, and nine other members present.

Narcissus serotinus and Tapeinanthus humilis.—Mr. Gould showed three dried flowers, believed to be those of *Narcissus serotinus*, collected by Mrs. M. E. Reid in the district south of Badajoz, where they were abundant. Mr. Bowles drew attention to the conspicuous venation of the tepals of one of the specimens, which he thought might be the very rare hybrid between *Narcissus serotinus* and *Tapeinanthus*. Mr. Gould also showed a specimen of *Tapeinanthus humilis*, a small yellow-flowered plant related to Narcissus but lacking the characteristic corona of that genus, collected by Mrs. Reid in the Roman amphitheatre at Italica, outside Seville.

Petalody in Narcissus.—Mr. Gould showed a Daffodil in which a concave, white, petaloid outgrowth had developed from the dorsal face of one of the anthers.

Pilea Cadierei.—A plant of *Pilea Cadierei* was exhibited by Messrs. Craigwell Nurseries, Feltham, Middlesex. Mr. W. T. Stearn gave an account of the history of this new greenhouse and room plant. The species was found in 1938 by Cadiere in virgin forest at 600 metres in Indo China and introduced to the Jardin des Plantes at the Museum National d'Histoire Naturelle, Paris, where it was described as a new species by Guillaumin and Gagnepain in Bull. Mus. Hist. Nat. (Paris) II, 10 : 629 (1939). It has been extensively propagated in Denmark, and has recently found its way into English nurseries.

It is a glabrous, bushy plant about 9 inches high, with opposite, elliptic or obovate, long-stalked leaves, the upper surface of which is blistered with silvery patches.

Crocus Korolkowii.—Two pots of this species exhibited by Messrs. D. Stewart & Son, Ferndown, Dorset, contained plants in some of which certain flowers had more than the normal number of parts. In one flower the parts of the perianth were in whorls of six; in another in whorls of four. Some plants bore both normal and abnormal flowers. The Chairman thought it improbable that the plants would behave in this way again, and observed that *C. Korolkowii* has a larger corm than any other species he has seen, and that it produces a greater number of leaves per shoot than most Crocuses.

Amphichromy in Cyclamen persicum.—Messrs. Blackmore & Langdon, Twerton Hill Nursery, Bath, showed a plant of a horticultural form of *Cyclamen persicum* bearing some white and some purple-coloured flowers. Evidently a somatic mutation had occurred at an earlier stage in the development of the corm.

Proliferous Nymphaea.—Mr. A. H. Nisbet, of Brookers Farm, Gosport, sent an abnormal specimen of Nymphaea 'Sunrise,' consisting of a pair of short rhizomes bearing roots and apical buds and joined by their bases. Mr. Nisbet stated in a letter that the specimen had developed last July from a flower in which the petals had faded normally although the sepals had persisted for some time. During the autumn several foliage leaves had been formed. In the specimen before the Committee it was possible to discern the point from which the flower-stalk had been detached, and also the bases of the sepals. A possible explanation of this phenomenon is that an adventitious vegetative bud or buds had arisen in or near the axils of sepals, and had grown out, eventually producing an independent plant.

FRUIT AND VEGETABLE COMMITTEE—Mr. F. A. Secrett, C.B.E., F.L.S., V.M.H., in the Chair, and thirteen other members present.

Awards recommended:

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To Messrs. Carters Tested Seeds Ltd., Raynes Park, London, S.W. 20, for a Group of Vegetables.

Silver-Gilt Hogg Medal

To Messrs. J. Cheal & Sons Ltd., The Nurseries, Crawley, Sussex, for a Group of Apples.

Cultural Commendation

To Mr. R. E. Thoday, St. John's College, Cambridge, for Tomato ' Harbinger.'

Other Exhibits

Apple ' Winston ' from The Director, National Fruit Trials, Wisley.
Apple Seedling from J. W. Fieldhouse, Esq., 8 Mill Lane, Standon, Stafford.

FLORAL COMMITTEE A—Mr. G. W. LEAK, V.M.H., in the Chair, and nineteen other members present.

Awards Recommended:

Gold Medal

To Messrs. Blackmore & Langdon, Bath, for an exhibit of Cyclamens.

Silver-gilt Banksian Medal

To Messrs. Walter Blom & Son, Ltd., Watford, for an exhibit of Daffodils and Hyacinths.

Silver Flora Medal

To Messrs. Allwood Bros., Ltd., Haywards Heath, for an exhibit of Carnations.

Silver Banksian Medal

To Messrs. R. H. Bath, Ltd., Wisbech, for an exhibit of Freesias and Lachenalias.

Flora Medal

To Messrs. Napiers Stepswater Nurseries, Ltd., Taunton, for an exhibit of Carnations.

Banksian Medal

To Messrs. Blackmore & Langdon, Bath, for an exhibit of coloured Primroses.
To Mr. Francis Little, Luton, for an exhibit of Pelargoniums.

Selected for Trial at Wisley

Freesias 'Auriole,' 'Cherub,' 'Cream,' 'Golden Harvest' and 'Moongold' from Messrs. R. H. Bath, Ltd., The Floral Farms, Wisbech.

FLORAL COMMITTEE B.—Lord ABERCONWAY, C.B.E., LL.D., D.Sc., V.M.H., in the Chair, and fourteen other members present.

Awards Recommended:

Silver Flora Medal

To Messrs. Hillier & Sons, Winchester, for an exhibit of flowering and evergreen shrubs.

Silver Banksian Medal

To Messrs. Craigwell Nurseries, Feltham, for an exhibit of stove and greenhouse plants.
To Messrs. L. R. Russell, Ltd., Windlesham, for an exhibit of flowering and evergreen shrubs.

Flora Medal

To Messrs. J. Cheal & Sons, Ltd., Crawley, for an exhibit of flowering trees and shrubs.
To Mr. K. W. Harle, Lower Basildon, for an exhibit of succulents.
To Messrs. D. Stewart & Son, Ltd., Ferndown, for an exhibit of flowering shrubs and conifers.
To Mr. Frederick Street, Woking, for an exhibit of hardy Heaths and conifers.
To Messrs. F. Toynbee, Ltd., Barnham, for an exhibit of conifers and hardy Heaths.

Banksian Medal

To Messrs. R. H. Bath, Ltd., Wisbech, for an exhibit of Irises, Crocuses and other bulbous plants.
To Messrs. Burkwood & Skipwith, Ltd., Kingston, for an exhibit of evergreen and flowering shrubs.
To Messrs. W. E. Th. Ingwersen, Ltd., East Grinstead, for an exhibit of rock garden plants and shrubs.
To Messrs. Kew Topiary Nursery, Ltd., Richmond, for an exhibit of clipped trees.
To Messrs. M. Prichard & Sons Ltd., Christchurch, for an exhibit of shrubs and rock garden plants.
To the Queenswood School, Hatfield, for an exhibit of *Coleus thyrsoideus*.
To Messrs. D. Stewart & Son, Ltd., Ferndown, for an exhibit of bulbous plants.
To Messrs. Wakeley Bros. & Co., Ltd., North Mymms, for an exhibit of bulbous plants and shrubs.

Cultural Commendation

To the Curator, The Royal Botanic Gardens, Kew, for a specimen plant of *Eucharis grandiflora*.

Other Exhibit

Mahonia japonica, exhibited by Dr. M. Amsler, V.M.H., Hawkhurst, Kent.

ORCHID COMMITTEE—Mr. C. H. Curtis, M.B.E., F.L.S., V.M.H., in the Chair, and nineteen other members present.

Awards Recommended:

Silver Flora Medal

To Messrs. Sanders (St. Albans) Ltd., St. Albans, for an exhibit of Orchids.
To Messrs. Stuart Low Co. Ltd., Jarvis Brook, for an exhibit of Orchids.

Lindley Medal

To Mr. R. E. Farmer, gardener to H. W. B. Schroder, Esq., Dell Park, Englefield Green, for a plant of *Cattleya* 'Thetis' var. 'Troy' (*C.* 'Delphin' × *C.* 'Titrianae'), (votes 16 for, 0 against).

Award of Merit

To *Aerangis* sp. (Subject to naming), (votes unanimous) exhibited by the Director, University Botanic Gardens, Oxford.
To *Cypripedium* 'Air de Ballet' var. 'Charmante' (*C.* 'Chatwode' var. 'Mastiff' × *C.* 'Akeley'), (votes 13 for, 0 against), exhibited by Messrs. Black & Flory, Slough.
To *Cypripedium* 'Fred Watts' (*C.* 'Jasmine' × *C.* 'Sunbeam'), (votes 12 for, 4 against), exhibited by Messrs. H. G. Alexander Ltd., Tetbury.
To *Cypripedium* 'Honey Dew' (*C.* 'Ansun' × *C.* 'Lady Mona'), (votes 10 for, 0 against), exhibited by Messrs. R. & E. Ratcliffe, Chilton.
To *Odontoglossum* 'Aldalum' (*O.* 'Mandalum' × *O.* 'Alpero'), (votes 15 for, 0 against), exhibited by S. Tharp, Esq., Purley.
To *Odontoglossum* 'Lowestoft' (*O.* 'Alvara' × *O.* 'Tordonia'), (votes unanimous), exhibited by S. Tharp, Esq., Purley.

Cultural Commendation

To The Curator, University Botanic Gardens, Oxford, for a plant of *Aerangis* sp. (votes unanimous).

FEBRUARY 26, 1952

FRUIT AND VEGETABLE COMMITTEE—Mr. F. A. Secrett, C.B.E., F.L.S., V.M.H., in the Chair, and twenty other members present.

Awards Recommended:

Silver-Gilt Hogg Medal

To Messrs. J. Cheal & Sons, Ltd., Lowfield Nurseries, Crawley, Sussex, for a Group of Apples.

Silver Hogg Medal

To St. John's College, Cambridge, for a group of Apples.

Other Exhibits

Group of Variegated Kale, from Messrs. Barr & Sons, 11–13 King Street, Covent Garden, London, W.C.2.
Apple Seedling, from H. C. Kingstone, Esq., 9 Lyme Avenue, Warminster, Wilts.
Apple Seedling, from H. Stacey, Esq., 174 Chartridge Road, Chesham, Bucks.

FLORAL COMMITTEE A—Mr. G. W. Leak, V.M.H., in the Chair, and thirty-one other members present.

Awards Recommended:

Silver-Gilt Flora Medal

To Messrs. Carter's Tested Seeds, Ltd., Raynes Park, for an exhibit of Hyacinths.
To Messrs. Sutton & Sons, Ltd., Reading, for an exhibit of *Primula malacoides* in variety.

Silver Flora Medal

To Messrs. Allwood Bros., Ltd., Haywards Heath, for an exhibit of Carnations.
To Messrs. Blackmore and Langdon, Bath, for an exhibit of Polyanthus, coloured Primroses and Cyclamens.
To Messrs. Walter Blom & Son, Ltd., Watford, for an exhibit of Daffodils, Crocuses, shrubs.
To Messrs. Dobbie & Co., Ltd., Edinburgh, for an exhibit of Daffodils, Tulips, Hyacinths and Crocuses, etc.
To Messrs. Turner & Reed, Petersfield, for an exhibit of *Primula malacoides* in variety.
To Messrs. R. Wallace & Co., Tunbridge Wells, for an exhibit of Daffodils, Tulips, Crocuses and various bulbous plants.

Silver Banksian Medal
To Mr. J. Amand, Holbeach, for an exhibit of Freesias, Roses, Lilacs, etc.
To Messrs. R. H. Bath, Ltd., Wisbech, for an exhibit of Daffodils, Tulips, Crocuses.
To Messrs. Wakeley Bros. & Co., Ltd., North Mymms, for an exhibit of Daffodils, Crocuses, Hyacinths.

Flora Medal
To Messrs. R. H. Bath, Ltd., Wisbech, for an exhibit of Freesias.
To Messrs. Walter Blom & Son, Ltd., Watford, for an exhibit of Primulas.
To Messrs. J. Cheal & Sons, Ltd., Crawley, for an exhibit of Polyanthus, Primroses and Crocuses.
To Messrs. Wm. Fromow, Ltd., Chiswick, for an exhibit of Daffodils and Hyacinths.
To Messrs. D. Stewart & Son, Ltd., Ferndown, for an exhibit of Hyacinths, Crocuses, etc.
To Messrs. Toogood & Sons, Ltd., Southampton, for an exhibit of Anemones.

Banksian Medal
To Messrs. B. R. Cant & Sons, Ltd., Colchester, for an exhibit of Roses.

Selected for Trial at Wisley
Cyclamen persicum giganteum 'Sweet Scented Strain,' from Messrs. Frampton's Nurseries, Ltd., Worthing.
Polyanthus 'Langdon's Blue,' from Messrs. Blackmore & Langdon, Bath.
Primula malacoides 'Apple Blossom,' from Messrs. Sutton & Sons, Ltd., Reading.

Other Exhibits
Euphorbia, from W. J. Kaye, Esq., Guildford.
Primula, from Long Grove Hospital, Epsom.
Violet, from C. J. Howlett, Esq., Earley, Reading.

FLORAL COMMITTEE B—Lord ABERCONWAY, C.B.E., LL.D., D.Sc., V.M.H., in the Chair, and twenty-three other members present.

Awards Recommended:

Silver-Gilt Banksian Medal
To Messrs. L. R. Russell, Ltd., Windlesham, for an exhibit of flowering trees and shrubs.

Silver Flora Medal
To Messrs. Hillier & Sons, Winchester, for an exhibit of flowering shrubs and rock plants.
To Messrs. R. C. Notcutt, Ltd., Woodbridge, for an exhibit of flowering trees and shrubs.
To Messrs. L. R. Russell, Ltd., Windlesham, for an exhibit of stove and greenhouse plants.
To Messrs. Waterer, Sons & Crisp, Ltd., Bagshot, for an exhibit of flowering trees and shrubs.

Silver Banksian Medal
To Messrs. Barr & Sons, Taplow, for an exhibit of bulbous plants.
To Messrs. J. Cheal & Sons, Ltd., Crawley, for an exhibit of flowering trees and shrubs.
To Messrs. Craigwell Nurseries, Feltham, for an exhibit of stove and greenhouse plants.
To Messrs. P. de Jager & Sons, Ltd., London, E.C.4, for an exhibit of species and varieties of Crocus.
To Messrs. Haskins Bros., Bournemouth, for an exhibit of flowering and evergreen shrubs.
To Messrs. W. E. Th. Ingwersen, Ltd., East Grinstead, for an exhibit of rock garden plants and shrubs.

Flora Medal
To Messrs. Burkwood & Skipwith, Ltd., Kingston, for an exhibit of flowering and evergreen shrubs.
To Messrs. Elm Green Nurseries, Claygate, for an exhibit of plants for room decoration.
To Mr. K. W. Harle, Lower Basildon, for an exhibit of succulents.
To Messrs. Kibble & Clare, Ltd., Ascot, for an exhibit of Heaths and rock garden plants.
To Mr. M. P. Kooper, Ferndown, for an exhibit of flowering shrubs and rock garden plants.
To Messrs. MacPenny Nurseries, Bransgore, for an exhibit of flowering shrubs and rock garden plants.

JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY

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THE SECRETARY'S PAGE

ANNOUNCEMENTS—JUNE AND JULY

Shows

WEDNESDAY, June 4 12 NOON to 6 P.M. THURSDAY, June 5 10 A.M. to 5 P.M.	Iris Society's Show.
TUESDAY, June 10 12 NOON to 6 P.M. WEDNESDAY, June 11 10 A.M. to 5 P.M.	Fortnightly Show. National Cactus and Succulent Society's Competition. British National Carnation Society's Pink Competition.
TUESDAY, June 24 12 NOON to 6 P.M. WEDNESDAY, June 25 10 A.M. to 5 P.M.	Fortnightly Show. Flowering Tree and Shrub Competition. British Delphinium Society's Show. Cactus and Succulent Society's Competition.
FRIDAY, June 27 12 NOON to 7 P.M. SATURDAY, June 28 10 A.M. to 5 P.M.	National Rose Society's Show.
TUESDAY, July 1 12 NOON to 6 P.M.	National Sweet Pea Society's Show.
TUESDAY, July 8 12.30 P.M. to 6 P.M. WEDNESDAY, July 9 10 A.M. to 5 P.M.	Fortnightly Show. Fruit and Vegetable Competition. Geranium Society's Competition. British National Carnation Society's Show in the Old Hall which will remain open until 8 P.M. on July 8.

Shows—*continued.*

TUESDAY, July 22
12 NOON to 6 P.M.
WEDNESDAY, July 23
10 A.M. to 5 P.M.
} Fortnightly Show.

Lectures

TUESDAY, June 10, at 3 P.M. "Cultivation of Cacti and Succulents" by MRS. VERA HIGGINS, M.A., F.L.S., V.M.H.

TUESDAY, June 24, at 3 P.M. "The Snow Mountains of China" by DR. J. F. ROCK.

TUESDAY, July 8, at 3 P.M. "The Forcing of Early Vegetables and Suitable Varieties" by MR. F. A. SECRETT, C.B.E., F.L.S., V.M.H.

TUESDAY, July 22, at 3 P.M. "Recently Introduced Primulas" by DR. H. R. FLETCHER.

Demonstrations at Wisley—The following demonstrations will be given at Wisley, that on the second day being in each case a repetition of that given on the first.

Flower Garden

July 30–31. The Vegetative Propagation of Shrubs and Herbaceous Plants. (Commencing at 2 P.M.)

Fruit Garden

July 2–3. The Summer Pruning of Fruit Trees. (Commencing at 2 P.M.)

The Society's Halls—Fellows and others may be interested to know that the Society's Halls and Rooms, when not in use by the Society, are available for hire for exhibitions, conferences, dinners, dances, etc. Full catering facilities are available.

The area and approximate accommodation of the Halls and Rooms are as follows :—

	AREA	DINING	DANCING	MEETING OR CONFERENCE
New Hall . .	20,000 sq. ft.	900	2,000	1,700
Old Hall . .	12,000 ,, ,,	700	1,000	1,000
New Hall Lecture Room . .	1,800 ,, ,,	—	—	200
New Hall Restaurant	2,000 ,, ,,	250	180	150
Old Hall Restaurant	1,000 ,, ,,	70	70	100

Several small committee rooms are also available.

Full particulars may be obtained from the Secretary.

Fair Copying Declaration—The Royal Society have asked us to draw the attention of our fellows to their "Fair Copying Declaration" to which this Society is a signatory. This declaration is designed to assist scientists who need in the normal course of their work to make copies of papers appearing in scientific periodicals and states that the

signatories to the declaration will regard it as fair dealing for a non-profit making organization such as a library to make a *single* reproduction of a part of an issue of a periodical on behalf of a person requiring this for private study or research and providing that he undertakes not to sell or reproduce for publication the copy supplied. Further details of the declaration and a list of signatories may be obtained from the offices of The Royal Society, Burlington House, London, W. 1.

Wisley Trials—The Royal Horticultural Society will carry out during the season 1953–54 the following invited trials postponed from 1952.

Schizanthus, 1 packet of seed to produce 60 plants.
Violas, named varieties (grown from seed) $\frac{1}{16}$ oz. of seed of each variety.
} Entries to be received at Wisley not later than *June 30, 1952.*

Violas, named varieties (grown from plants), 6 plants of each variety to be received at Wisley not later than *March 30, 1953.*

Iris spuria and its hybrids, 3 plants of each variety to be received at Wisley not later than *September 30, 1953.*

Conditions for Entry to Trials

1. All entries must be made on the appropriate form obtainable from The Director, The Royal Horticultural Society's Gardens, Wisley, Ripley, Woking, Surrey.

2. The entrant must certify on the form either

(*a*) that the variety or strain has been raised or developed by him
or (*b*) that the variety or strain was, or is about to be, introduced by him to British commerce.

and the entrant must also supply sufficient particulars of the history of the variety or strain to substantiate his certificate, but such particulars will not be published by the Society without the sender's consent.

3. Entry forms must be returned by the above specified dates. (Please note that revised forms are now available, and old forms should not be used.)

4. Seeds and plants should not be sent until the entrant receives notification that his entries have been accepted.

5. For each entry accepted a fee of 10*s.* will be charged.

6. No firm or person may send more than 10 entries of any one kind of plant.

WISLEY IN JUNE

DURING June the Floral Trials will be prominent among the attractive features of Wisley. Most of these are to be found in the enclosed rectangular plots between the terrace and Battleston Hill. The Sweet Peas, raised from autumn sown seed, will be at their best during the second half of the month. The cordon system of training has not been adopted this year, all the plants having been allowed to develop in the more natural way, supported by pea-sticks. In adjacent plots there will be collections of Delphiniums in a wide range of blue and purple shades, Lupins in almost all the colours of the rainbow, Aquilegias of daintier form and usually more delicate colouring, and the vivid Iceland Poppies, so free-flowering and useful for cutting. The collection of bearded Irises is planted in the sloping beds between the upper end of the terrace and the frame yard, where they receive the full exposure to the sun which they demand and where the flowers enjoy some shelter from wind. In a favourable season their succession of exquisitely tinted blooms will continue for about four weeks.

Although the Rhododendron season has passed its peak a walk round Battleston Hill will be worth while to see the later hybrids and such distinctive species as *R. Griersonianum*. This parent of numerous hybrid progeny has bequeathed to almost all of them some of its unique jasper-red colouring.

The Roses in the long borders on Weather Hill have begun their long display. Since last summer the collection has been augmented by the addition of several new varieties. Visitors who have previously seen these only on the show bench will be interested to observe their behaviour in the garden. Around the edges of the old Pear orchard on the north side of Weather Hill there is planted a collection of Japanese Paeonies, which will be bearing an abundance of red, pink or white, often scented, flowers now. Their flowers are superb for cutting, their foliage remains tidy and colours in the autumn, and they require no staking or annual replanting. Few herbaceous plants have so many virtues.

On a still, sunny morning the Cistuses beside the Alpine House will be covered with bright but fleeting flowers. For hot, sandy places like this one they are unequalled. Practically every species of Cistus, as of the allied genera Halimium and Helianthemum, is worth growing; but there are hybrids of great excellence, including *C. Skanbergii*, *C. purpureus*, *C.* 'Silver Pink' and *Halimiocistus wintonensis*.

The Alpine House has passed its most interesting season, but plenty of interesting plants have yet to flower there. Several species of Lewisia, an American genus of plants well adapted to pot culture, are worth noting. *L. Heckneri* has bright rose-pink flowers, those of the easily grown, glossy-leafed *L. columbiana* are white with purple veins, those of *L. pygmaea* very small, pale pink or white. Among other attractive plants one may expect to find here are *Rhodohypoxis Baurii* and its pale variety 'Apple Blossom,' *Gilia californica*, a small shrubby species with white-eyed silky rose blossoms, *Allium acuminatum* with persistent flowers, at first mauve, later becoming papery, *Globularia bellidifolia* with neat rosettes of leaves and fluffy heads of pale grey-blue blossoms, the

dwarf creamy pink *Phlox adsurgens*, and the first of a long succession of Campanulas.

The greatest masses of colour in the Rock Garden are provided by patches of Violas, Helianthemums, Campanulas and Dianthus of many kinds, and certain other plants of especially vivid hue such as *Lychnis Viscaria splendens*. *Genista lydia* and *G. dalmatica*, both yellow-flowered, provide strong contrast. Some other plants deserving notice are *Roscoea Humeana*, producing hooded purple flowers from sheaves of fresh green foliage, the taller primrose-yellow *R. cautleoides*, the stately crimson-flowered *Incarvillea Delavayi*, *Codonopsis clematidea* with pearly blue delicately pencilled bells, and *Orchis foliosa* with massive spikes of large purple blooms.

In early June the cool glades of the Wild Garden are richly coloured by drifts of Candelabra Primulas such as *P. japonica*, *P. pulverulenta* and *P. helodoxa*. The species of Meconopsis, especially the popular blue *M. betonicifolia*, and the yellow and orange forms of the Welsh Poppy, *M. cambrica*, will also be prominent. Among the earlier Lilies we may expect the rose-pink *Lilium rubellum*, the tall yellow *L. Szovitsianum*, *L. umbellatum* in several fiery red forms and the somewhat less conspicuous but easily grown *L. pyrenaicum*. Some outstanding trees and shrubs will be in flower now. *Magnolia Watsonii* is perhaps the least likely to be missed, for its waxy ivory white blooms have a strong lemon-like scent. The smaller flowers of *M. virginiana*, which have a more agreeable fragrance, open in succession for a period of several weeks. The lilac-coloured *Rhododendron azaleoides*, a hybrid of unknown origin, and two small-flowered North American species, *R. viscosum* and *R. arborescens* are likewise pleasantly scented. In several parts of the Wild Garden there are unusually fine old specimens of *Kalmia latifolia*, the Calico Bush, and its compact variety *myrtifolia*, covered with neat pink posies of blossom.

In Seven Acres the large bushes of *Genista cinerea* and *Spartium junceum* will be conspicuous. Both are excellent shrubs for sunny places in dryish soils where they flower abundantly. Escallonias are also very gay here at the present time, and some of the hybrids, such as *E. langleyensis*, *E.* 'Donard Seedling' and *E.* 'Apple Blossom' are almost indispensable. The Mock-oranges (Philadelphus) are represented by a goodly number of species and hybrids. *Buddleia alternifolia*, distinct from all other species not only in its leaf-arrangement but in its elongated wand-like inflorescence, has been growing here since plants were first raised in this country from seeds collected by Reginald Farrer.

Rose species will be the most attractive feature in Howard's Field, but many other shrubs, including Cistuses, Spiraeas and Philadelphus will make a visit worth while. This area affords a striking demonstration of the wide range of woody plants which can be successfully established in the most unpromising sandy soil.

Some other parts of the Gardens worth inspection, but of which lack of space precludes a detailed account, are the Vegetable Trial grounds, where a trial of Broad Beans is at its best, the Award of Garden Merit collection, the greenhouses, and the borders around the Laboratory walls, where a number of uncommon shrubs are to be found.

THE SMALLER GARDEN

I. BULKELEY MILL

A. T. Johnson

SITUATED at the foot of the hills in the lower Conway Valley, North Wales, the main part of this garden, dating from about thirty-five years ago, has branched-out during that period by our acquiring three adjoining "parcels," the whole now covering some four acres. In shape, shall we say, lanceolate, this lies north and south with a steepish slope on its eastern flank, while the opposite side is bounded by the long curving sweep of a rocky mountain river. The slope was taken in hand some years earlier, but this consisted of little more than the clearing of scrub, underplanting the old Oaks with suitable woodland shrubs, bulbs and other oddments, and adding a few Conifers and other trees where space allowed, all these being now well established. At the foot of the slope flows the spent-water from a fifteenth-century mill situated to the north of the property. This stream, with its leaning Alders and Ferns, flows through the centre of the garden, thus dividing the woodland from the level of our little valley before joining-up with the main river alongside a shaded waterside walk through what is called the Dingle. And this tree-filled glen, too rocky and too often swept by flood for planting—which would, anyway, probably spoil its natural charm—leads to one of the later of our more recently secured plots at the southern extremity. At the opposite end the old mill with its cottage and other buildings afford some opportunities for wall plants together with an erstwhile pig-run and other appurtenances now harbouring old Roses and dwarf Rhododendrons for the most part.

The woodland is much as it was when we took over the level, mainly old pasture, the latter, where most of the planting has been done, consisting of a lime-free, deep alluvial soil, generally overlying gravel. Thus, though drainage is sharp there is no lack of moisture, the grass remaining green even during prolonged drought. Though we are of course within the westerly zone, being six miles from the sea, sharp frosts often occur, these being most severe along the low-lying valley bottom. As to rainfall, the annual average for the twenty years, 1925–1944, is 47·22 inches.

The one-time pasture, occupying the greater part of the garden's centre, was converted into a lawn by the simple method of mowing, rolling and a little weeding. As a lawn it would not, perhaps, reach the Chelsea standard, but, in effect, it does all that is expected of it. Forming a wide lane between the trees and shrubs, we have what is usually understood by a glade, and the planting of the flanking reaches was so done that their occupants would overlap on to the grass, thus forming a broken line on each side and ultimately doing away with the necessity for verge clipping. Behind some of the shrub areas are green backwaters and, where the greatest width prevails, the plantations are intersected by flagged paths (to which I shall refer later). These subsidiary paths were laid out to no definite plan, most of them falling into place by our adopting more or less the lines of the most-used tracks that had been

made by ourselves during the preliminary planting. There are some grass walks also, but no path is without a definite purpose regarding both direction in line and destination, and with all we err towards the few rather than the many.

In the larger planted areas we kept in view a future presenting so close a growth—consistent with the welfare of the plants—that the ground would be covered and labour saved; and this policy, plus an interplanting of the larger shrubs and trees with ground-covering plants, has brought about a steady decrease in maintenance without any loss in garden value. The trees, here on the level and referred to later, apart from their individual beauty, afford point and character to what might otherwise have been too uniform and flat. They also serve as sun-screens for plants enjoying light shade, while as contributors to autumn colour many of them are of the highest value.

Having outlined in brief the canvas, let me proceed with some of the more interesting details, adding the confession that it is towards the species rather than the garden hybrid that we incline, making exception of course in the case of such things as Roses, Camellias and herbaceous plants. Yet even among Rhododendrons, here taking precedence in numbers among all other genera, many of the modern hybrids so nearly approach those of the wild in those finer qualities which stamp them with the hall-mark of the nature-bred, that we gladly admit them to the fold. But here, lest I be accused of horticultural snobbery, may I explain that in our preference for the species we are influenced by the fact that this garden, being so closely associated with the wild, might violate the decencies were it to blossom forth in great masses of colour for colour's sake. And, generally speaking, it is the species, exotic though it may be, which blends most sympathetically with our setting and—since the garden is essentially informal—with our unchanging desire that so it shall remain.

Returning to hybrid Rhododendrons, it is, I think, three or four specimens of *R.* 'Penjerrick' which appeal to us most strongly, their exquisite refinement, poise and balance being unexcelled. But about a dozen of 'Lady Chamberlain,' 'Lady Rosebery,' and other *R. cinnabarinum* crosses run them close. 'Sir Charles Lemon,' 'Lady Bessborough,' 'Halcyone,' 'Naomi,' 'Cornish Cross,' 'Aurora,' 'Loderi King George,' 'Shilsonii,' 'Soulbut,' 'Loder's White,' some of the 'Azor' varieties, and 'Luscombei,' are among others to be mentioned without resorting to a catalogue of names. Then there are, of course, those of the *R. Griersonianum* household which seem to enjoy our conditions—'Hiraethlyn,' 'Tally Ho,' 'Fabia,' 'Roman Pottery,' 'Vanessa,' 'Matador,' 'Elizabeth' and 'Laura Aberconway,' to name but a few of that brilliant clan which has surged across the Rhododendron world with a splendour of such vehemence that it is sometimes—as beneath our old Oaks and Birches—with a sense of relief that we turn to the gentle blues and cool mauves of 'Lavender Girl,' 'Susan' or 'Blue Peter,' or, shall we say, to some groups of those *R. Augustinii* hybrids like 'Bluebird' and 'Blue Diamond,' canopied by a Cherry's fleecy whiteness. Nor can we overlook the keen blue of 'Electra' which, in addition to those just mentioned, also helps to assuage the colours of

the Azaleas where this seems desirable. While we are well aware of the good garden value of both deciduous and Japanese Azaleas, we endeavour so to select and place them that they do not shout defiance at everything else with their fiery hues. But there are in these admirable plants soft tones of yellow, apricot, cream and rose in plenty for those who, like ourselves, are a little afraid of frightening the dryads with conflagrations of burning scarlets—notably among the Knaphills and the *R. occidentale* section.

But I must go on to a few of those Rhododendron species which are features of interest. Occupying a sunny knoll on the wooded slope, *R. ferrugineum*, planted long years ago, has made a thicket 4–5 feet high and more than 20 feet across, its blood-red flowers sharing the honours with the Heaths round about it. Lower down, also an early planting here, is a big bush of *R. Falconeri* which in a good year will carry at least 200 trusses. A younger plant of *R. arizelum* close by, with an even nobler leafage, has also been flowering for some years. But though the rest of the *Falconeri* and *Grande* species, some half-dozen or more, are, for the most part, still no more than foliage plants, we are well content, filling as they do a low and moist depression alongside the millstream with that beautiful and most manageable of Bamboos, *Sinarundinaria nitida* and others in the offing. Also on the slope is a group of *R. chasmanthum*—placed here because not too hardy—some sets of *R. exquisitum* and *R. timeteum*, a nice specimen of the excellent *R. Fortunei* showing how well it appreciates woodland conditions, while those interested in the curious and rare will find also *R. semibarbatum*. Along with these, *Arbutus Menziesii* has soared to over 30 feet, *Vaccinium glauco-album* is well represented, as is the genus *Pieris*, and there are some large masses of Tree Heaths, as well as a colony of *Genista cinerea* and *G. virgata* in an open spot with, behind them, a Judas Tree of respectable age and dignity.

Coming now to a few Rhododendron species bordering the long lawn which are well-established, one of the best is *R. orbiculare*. A firm and symmetrical dome, 4 feet high and 10 feet across, this fine species arrests attention at any season by reason of its handsome foliage, while it is supremely beautiful when adorned by hundreds of trusses of its tubby rose-pink bells. For companions it has *R. oreotrephes*, *R. Fargesii* and *R. chaetomallum*, while near by is *R. campylocarpum*, a good form of *R. dichroanthum*, and, hanging over the mill stream, is a bold group of *R. lutescens*. With a number of lapponicums and other dwarfs, broken by areas of Heath, *R. calophytum* and *R. sutchuenense* var. *Giraldii* take up key positions with *R. Thomsonii*, *R. haematodes*, some varieties of *R. mucronatum*, *R. Wightii*, doing very well considering it is a lacteum, and some Stewartianums. The most noteworthy trees and shrubs associated with these, apart from the Birches and Alders, are *Nothofagus obliqua* (40 feet) a smaller *N. procera* and *N. Dombeyi*, a graceful evergreen, *Liquidambar styraciflua* (25 feet) which colours well, *Cercidiphyllum japonicum* which does not, though its spring foliage is very lovely, Tree Heaths, and *Abies Forrestii*.

Two *Eucryphia nymansensis* are here also, columnar trees exceeding 20 feet. These do so well and are so good both in foliage and flower,

they are easily the finest evergreens of their kind here, but the Rostrevor reverse hybrid promises, when further developed, to challenge even their high standard. *Magnolia Kobus* and *M. K. borealis*, with larger, fragrant flowers, together with the excellent *Watsonii*, all nearly full grown, reach over the grass. At a little distance there are established plants of *M. sinensis*, *M. salicifolia* and *M. Wilsonii* doing very happily. And now that I am on the subject I may mention *M. Veitchii* (30 feet) and *M.* × *Thompsoniana*, near our southerly extremity. Both of these are entirely satisfactory, the rosy goblets of the former against the blue skies of March, the other giving us a long succession in summer of its ivory, lemon-scented blossoms. In evergreen Magnolias, *M. grandiflora* var. 'Goliath,' now a big bush, is an easy first in size of flower and free-flowering. Among Rhododendrons at this south end of the garden are the beautiful *R.* 'Polar Bear' and a particularly good form (or hybrid) of *R. campanulatum*, while in a very mixed border the highlights are *Hoheria populnea*, the hardiest of its kind with us, *Embothrium lanceolatum* and *Cytisus Battandieri*.

But I must return to the glade, passing beneath the oldest of our Cherries, now adult trees, viz. *Prunus yedoënsis*, *P. Avium plena*, the Japanese 'Shirotae,' *P. serrula tibetica* and three varieties of *P. subhirtella*. *Juniperus Coxii*, now approaching tree-like stature, is on one side of the lawn while on the other is a stately specimen of *Fitzroya cupressoides*, which has never been injured by frost. But *Chamaecyparis formosensis* has suffered badly at times. Even so, it is well worth a place as a shrub since its foliage is so delightful in colour and form. So I might go on to a few Arizona Cypresses, Cryptomerias and others, but we resolved from the beginning to have a care with Conifers lest they should assert too pronounced a note in our informal-cum-natural lay-out. Still, they have their practical uses, nothing being quite so good as protectors for such choice Rhododendrons as *R. Williamsianum*, *R. Wardii*, *R. croceum*, *R. Souliei*, *R. Keysii* and *R. concatenans*, which are touchy in spring. Though not always reliable, we can do these, along with such as *R. neriiflorum*, *R. sperabile* and *aperantum*, with tolerable success, while behind the mill, with a north aspect, even *R. bullatum* and the old hybrids like 'Countess of Haddington' and 'Lady Alice FitzWilliam' are happy enough. Here also, but with more sun, are our best groups of *R. Augustinii*, raised from cuttings sent us from Monreith many years ago, while hard by is the main planting of dwarf Rhododendrons filling a narrow sunny bed some 30 yards in length.

The meadow adjoining the old mill, acquired twelve years ago and planted as an extension to the glade, is already showing signs of maturity, with its stretches of Heaths, groups of Rhododendrons and Azaleas, Mountain Ashes (notably the noble *Sorbus Sargentiana* and a well-advanced standard of *S. insignis*—K.W. 7746) *Acer Hersii*, so remarkable for its silver-striped bark, *Prunus Sargentii* and several Japanese Cherries not forgetting the single pink, 'Yei-Muri-Zako-Zakura,' presumably a dwarf while its autumn colour is first-rate. Other outstanding features here are Pollard's Almond hybrid, some bold groups of *Rosa Moyesii* and its hybrids which, appearing self-sown, we segregate for the sake of their wonderful crop of fruits. Styrax and Halesia are represented, there

is a group of *Hamamelis mollis* from the original introduction which we think distinctly superior, more Tree Heaths, notably the always reliable *Erica arborea* var. *alpina*, three or four Crabs and a 'Corkscrew Willow,' which, having soared to 25 feet, has the elegance of a Bamboo. Here, too, along one side of the central belt of grass, are such Rose species as *R. Wardii* (The 'White Moyesii') *R. Sweginzowii*, *R. macrophylla*, *R. Willmottiae*, *R. Farreri persetosa*, and *R. multibracteata*, an enormous bush over 20 feet wide. Many of the *R. rugosa* and other hybrids are grouped round about the mill as shrub Roses needing little care, and adjacent to them are the Old Roses, in particular the *alba*, *gallica*, *chinensis*, Bourbon and Burnet varieties.

A wall Honeysuckle which arouses no little attention for its prolificacy and summer-autumn blooming is *Lonicera grata* (*americana*), while, on a north wall, *Chaenomeles lagenaria* 'Phylis Moore' does equally well. This, a semi-double salmon-rose, is an old one but seldom seen. *C.* 'Rowallane Seedling' we also have as a bush flopping over the mill stream, and I know of none better than these two, if as good. Hydrangeas are much in evidence round about the mill cottage during the later months, an interesting one being *H. involucrata* var. *hortensis* in which the shrimp-pink flowers and bracts, fully doubled, hang in a sort of loose panicle. *Rosa Cooperi* (*odorata*) a fine single white, occupies about 12 feet of a sunny wall, while in the border hard by is *Arbutus Unedo* var. *rubra*, *Viburnum* × *Juddii*, a broad-leafed Embothrium, a Tricuspidaria rising from the base of a good specimen cut down by the zero frosts of '45, and that distinguished Forsythia with very large ivory yellow flowers and purple bark, *F. intermedia* 'Nyman's Variety,' an outstanding form. Nor can I omit to mention a large group of that fine Hypericum of FORREST's discovery known as 'Hidcote Variety,' the hardiest, best and most floriferous of its class and reliably evergreen. Surely one of the worthiest introductions of the half-century. Near this is a group of *H. Rogersii*, best of all in flower, but surviving only mild winters, while in spring and late summer the yellow blossoms and scarlet fruits of a big bush of *Berberis vulgaris* var. *asperma* will not be passed without notice.

Camellias are doing quite well in several small colonies, both in the woodland and elsewhere, and on a high and dry slope (above the frost) overlooking the mill Cistuses are assembled. These, consisting of most of the species and hybrids, and grouped closely together, as they grow in the wild, are among our most successful plantings. Along with them are some Ceanothus, *Erica umbellata*, Leptospermums, *Desfontainea*, *Schima argentea* and other more or less tender shrubs, including sapling Eucalypti. We lost all these latter during the great frost referred to, even trees 30 feet high, but the youngsters are getting away with their customary vigour, and it is interesting to note that *E. gigantea* and *E. Dalrympleana*, not hitherto tried, have endured 25° of frost without a complaint.

Herbaceous borders we have none, not only because such features would ill become such a garden, but because of their upkeep. Yet, there are herbaceous plants in plenty among the shrubs, while along the water are Candelabrum Primulas, Lysichitums, both yellow and white

(as well as an ivory-coloured hybrid), self-sown Willow Gentians, a massive clump of *Kirengeshoma palmata*, *Orchis foliosa*, moisture-loving Irises, Day Lilies, the taller Lysimachias and Senecios, these last dominated by the striking new hybrid called *Ligularia Hessei* var. 'Gregynog Gold,' a magnificent plant. So in more average soils are our herbaceous plants mostly confined to those which are permanent and as carefree as shrubs, such trustworthy labour-savers as Paeonies, Californian Irises, Salvias, Mulleins, the *Aster Amellus* hybrids, Trilliums and Hellebores indicating our line of choice in these things. Not possessing a "Lily soil," and so as to avoid the labour of much cultivation, our Lilies are mainly confined to half a dozen or so which will do with a minimum of attention or none at all. Thus *L. speciosum* thrives, as do *L. chalcedonicum*, various forms of *L. elegans*, *L.* × *testaceum* and *L. auratum*, this last making a brave show until a year or so ago when every bulb was eaten (under the snow) by mice or voles. *L. Martagon*, in several forms, is naturalized, and from a colony of *L.* × 'Maxwill' we get stems over 9 feet in height.

Autumn colour, both leaf and berry, presents one of the festivals of our garden year. Since we have all along planted with that end in view many of the best colouring shrubs and trees are now well grown, but of these I can do no more than mention a few—Birches, Acers, Liquidambar, Spindlewoods, Berberises, Disanthus, Azaleas, Nyssas, Gingko, Enkianthus, Cherries, Fothergillas, Parrotia, Mountain Ashes and *Koëlreuteria paniculata*. But the claims of spring having been no less insistent than those of autumn, not a season has passed these many years without our planting at least a few bulbs, always favouring those which would be in tone with our sylvan conditions, especially such as can be expected to do for themselves and naturalize. Wherefore, we now enjoy drifts of Cyclamens, Snowdrops, Daffodils, Erythroniums, Crocuses, Colchicums and the rest, these among shrubs (accompanied by Anemones) in the woodland or about the turf.

The fact that bulbs and other groundlings occupy so largely the soil originally broken up for shrub and tree planting should be sufficient answer to those visitors who may wonder why such places are now left uncultivated—some form of ground cover being largely employed as an alternative to hoeing and as a setting for the bulbs. A few plants of the wild naturally creep in and some of these may need a little control, but this involves comparatively light work, and so long as you are "selective" in your weed-killing, checking the weeds of cultivation rather than those of the wild, it is surprising how quickly the former disappear. Heaths, *Erica carnea* in particular, are loyal allies as ground cover, with Luzula among the taller shrubs and trees. Even a certain amount of Ivy is permitted, and this, incidentally, helps materially to prevent fallen leaves from being blown away. Wherefore, this, or other ground cover, not only does much to prevent weed growth, it serves as a medium for the accumulation of vegetable detritus and adds to the value of the carpeting as a moisture retainer. Autumn leaves alone scattered between the shrubs will, in addition to their other uses, prove effectual in checking weeds. Many shrubs, such as Rhododendrons, Heaths and Cistuses, if planted reasonably close will form their own ground cover. So will

the more robust and leafy herbaceous plants like *Iris sibirica*, Day Lilies, Astilbes, Spiraeas and the more vigorous wet soil Primulas. But in all these, in whatsoever you hope to be successful in taking care of themselves unaided and getting the better of the weeds, you must have a growth which is hearty and free. Wherefore, it has been our constant aim towards the securing of that healthy vigour to choose the plant to suit the conditions, rather than try to make the conditions suit the plant. In other words, while it is the naturally robust plant that can best overcome its own weeds and save us labour, it is the less robust which, unable to prosper without cultivation, because conditions are not what it needs, gives the weed its opportunity and brings retribution upon ourselves.

That exceptions creep in is admitted, otherwise we should have to forego, say, some favourite Meconopsis, or the Chinese Gentians—though *G. sino-ornata* will smother its own weeds so long as it is doing well. But it is because ground cover is a matter of such general importance in a garden the size of ours, which, started from "scratch," is maintained by our two selves (not giving it all our time by a long way) and the help of one part-time man, that I have here dwelt upon it at some length. And I think it can be claimed that the garden, run on natural lines, with much of it semi-wild, has gained rather than lost by our pursuit of such a policy.

Having concentrated so largely upon shrubs and trees, as well as permanent perennials, which do without cultivation in the usual sense, obviously means a great saving in maintenance. Pruning, fertilizing (we use compost almost exclusively) staking, dividing and the rest are reduced to a minimum. Grass verges, as I have said, are grown over as quickly as may be. Of lawn beds, as commonly seen in small gardens, we have none, and though there is a considerable extent of grass, since this does with one motor-mowing a week in summer, its cost in upkeep is light. Paths, as already stated, are few, those in the woodland and other semi-wild places being mostly trodden tracks. Others much in use are paved with slabs, already referred to. These, 2 feet square and made at home on wet days, are composed of cement, coarse granite chips and cinders, which, giving a rough surface, very quickly weather to a pleasing oyster-grey or become mossy. The slabs, in single or double lines, are simply laid in the soil, so that they are easily shifted should it be desirable to move or re-lay a path at any time. Such paths are, of course, entirely labour-free and everlasting, they are pleasant to walk on in any weather, and even those visitors to whom concrete in a garden is repellant, though prepared to scoff, have been known to pray.

PLANT HUNTING IN ASSAM

F. Kingdon-Ward, V.M.H.

THE Communist threat in 1949 to overrun the whole of South-East Asia speeded up my plans for another plant-hunting expedition to the high alps. So many good areas had already become inaccessible that, unless we went soon, and moved quickly, we might be too late; 1950 was likely to be the last opportunity for some considerable time. In the autumn of 1949, therefore, I applied to the Indian Government for permission to spend some months on the north-east frontier of Assam; and this being granted my wife and I immediately set about the preliminary arrangements.

At the end of 1949 there was not much choice of objective for the hardy plant collector. However, there was still the Lohit Valley, the shortest (though hardly the easiest) route to the Tibetan frontier. I had been up and down the Lohit Valley several times, and knew just how unexplored the high hills on either side really were. I calculated that the Chinese would not invade Tibet till the late summer, and so would not reach Chamdo (directly threatening Rima) before the autumn. They would therefore be very unlikely to penetrate into the Lohit Valley before 1951—if then.

My wife and I left our base on the plains on January 23, and reached Sadiya the same evening. By the 9th February we were in the gorge of the Lohit river, and by the 18th we had reached Walong—the last outpost in Assam—to find the mountains all round white with snow. Behind us lay the broad-leafed evergreen rain forest (of Indo-Malaysian type) of the foot hills—a great assemblage of big trees. Northwards the gorge of the Lohit river is arid, the cliffs surprisingly bare except for scattered Pine trees. The broad river terraces too are covered with grass and scrub or (if uncultivated) with Pine woods also, where bracken grows knee-high. A characteristic type of low scrub occupies the old moraines and stonier terraces. I noticed *Clerodendron serratum*, *Rosa longicuspis*, Ligustrum, Leptodermis, and even Philadelphus here.

In the deep ravines which slit the flanking ranges of the gorge, protected from the searing wind, a considerable variety of broad-leafed trees, both deciduous and evergreen, grow sparsely; the most abundant of these is *Quercus glauca*, the only Oak of the arid valley bottom. Others are *Fraxinus Griffithii*, *Carpinus viminea*, *Pittosporum floribundum*, *Schoepfia jasminodora*, and species of Rhus, Cedrela, Fig, Laurel (Litsaea) Prunus, Deutzia, and a winter-flowering Eugenia. *Euonymus Hamiltonianus*, a small semi-evergreen tree, was in ripe fruit and had borne a tremendous crop of its small almost spherical capsules; it flowers in September. Many of the above-mentioned woody plants take shelter under the cliffs, less on account of water shortage than as a protection against the perpetual wind which blows through the gorge, most violently during the hot weather.

Early in March we set out for Rima, about thirty miles further

north and across the river. Few plants were in flower so early in the year, either on the cliffs or in the Pine forest, or even in the sheltered ravines. A species of Arisaema with pale golden yellow fragrant spathe grows everywhere in the open, and is collected by the locals and fed to pigs. I also found a Cymbidium with exceedingly fragrant green flowers, striking but hardly beautiful. I have not seen this colour in the modern hybrid! This plant grew on bare gravel cliffs, and is probably a form of the widespread *C. cyperifolium*. A small stemless Palm with huge silvery pinnate leaves (Wallichia) grows in the ravines round Walong, and is one of the last survivors from the Indo-Malaysian jungle.

We crossed two large torrents which seemed to offer possible routes up to the western alps, and on the third day camped by the Sap Chu, on the Tibetan side of the frontier. March is a wet month. Rain down the valley means snow on the heights, and after several heavy falls the snow line descended to within 3,000 feet of the river—that is to say it was snowing at about 7,000 feet altitude. And though the next fine spell melted some of it, the valley remained cold. Signs of spring were not lacking after the middle of March, however. Already the Pear trees were in bloom, looking like summer clouds which, mingled with the pink puffs of Peach blossom, made a charming picture around the village near by.

We tried to follow up the Sap Chu, but could not penetrate the gorge. On the cliffs, below 5,000 feet, grew *Gaultheria codonantha*. It is a very hairy shrub with rough, hispid leaves and enormous apple green flowers flushed red, followed by clusters of large black "berries." Unfortunately it is not quite hardy in Britain.

Many interesting trees and shrubs lined the torrent. *Populus ciliata* was common, its sticky buds smelling of balsam. From the cankered twigs (it suffered badly from this disease) hung clusters of maroon-red catkins, but the leaf buds had hardly begun to open. Other unremarkable shrubs were Deutzia, Viburnum, Holboellia, Salix. The common trees I have already mentioned. In damp places grew colonies of *Iris Wattii*. Beyond Rima this plant carpets the woods very much as bluebells do a Surrey copse. However, it was not yet in flower.

One day we ascended the precipitous pine-clad slopes directly above our camp, and at 6,000 feet, crouched under a rock, came upon a compact undershrub, with smooth red stems, from which the bark sloughed like skin, and clusters of purple bell flowers, *Rhododendron oleifolium*. I must not overrate this species; sooner or later it grows bald and leggy, but it has a certain charm. However, this was an unusually dark-flowered form, and if we thought too highly of it, allowance must be made for the fact that it was our first Rhododendron.

Growing with *R. oleifolium* were small clumps of *Gaultheria Wardii*, notable for its softly ginger-haired leaves (under surface) and densely clustered milk-blue berries, like bits of unpolished turquoise. It was in ripe fruit and full of seed; like *G. codonantha* it is not quite hardy in Britain. Right down in the short grass, and carpeting rocks, grew *G. nummularioides*, which has attractive small leaves with bristly margin and a pleasing manner of growth, though the black fruits are mostly hidden by the foliage.

Several days later, in a sheltered valley less than 6,000 feet above sea-level, we came across a delightful bush Rhododendron of the Ciliicalyx type. It had large snow-white fragrant flowers in trusses of four, and was well covered with blossom, borne, however, rather too much under the foliage. From some crumpling capsules we obtained a pinch of last year's seed. This was fortunate, because we never came across it again. There seems to be nothing amongst the thirty known species of the Ciliicalyx group quite like it, so I propose to describe it as a new species.

By the time we reached 7,000 feet we were in an altogether different type of forest, new Conifers appearing mixed with an increasing variety of broad-leafed trees, including many which do not grow lower down. The conifers were *Pinus Armandi* (the blue Chinese Pine, with very long slender needles in fives, giving almost a weeping habit), *Picea morindoides*, and *Tsuga Brunoniana* (Himalayan spruce). Amongst broad-leafed trees, *Rhododendron arboreum*, blood red, in magnificent bloom, was prominent, and so were species of Oak, Birch, Ternstroemia, Poplar, Maple, and others. Long spikes of Cymbidium, with big yellow-and-brown heavily scented flowers hung from many of the trees where the sun never reached, or clustered on mossy fallen logs by the side of the torrent.

In the undergrowth a species of Mahonia, which may have been *M. calamicaulis*, originally collected only a few miles from here north-west of Rima, was coming into flower, a sheaf of yellow-beaded spikes emerging. It forms a considerable shrub in the forest, but does not display the reed-like trunk which gave its name to *M. calamicaulis*. Perhaps the Sap Chu plant is a different species. *Symplocos racemosa* was also in bloom.

Even more abundant was a thin Euonymus with wand-like stems and long linear leaves, a form of the variable *E. frigidus*. A second species, a root climber (*E. scandens*?), frilled many a tree trunk with shining mahogany foliage; the flowers may not be worth a second glance, in spite of the orange-scarlet seeds. But for spring colour the breaking leaf buds are fascinating. Incidentally, the local people make *ersatz* tea (if one can call it that) out of the mature leaves. It seems to me to be quite tasteless.

It is probable that intensive exploration of the vast extent of temperate forest in this region, around 8,000 feet altitude, would reveal many good new trees and shrubs, some of which would be hardy in Britain.

Meanwhile we received a number of visits from petty Tibetan officials who came to look at us and report, and also to make use of us. But the *jongpen* still withheld the expected invitation to Rima. Towards the end of the month, however, he went so far as to invite us over for the day, and mounting steeds no better than clothes horses, with distressingly hard wooden saddles beneath us, we reached the rope bridge in three hours, crossed the Lohit, and were welcomed at the trading post. We found the functionaries living in temporary quarters; it appeared that the official residence (a log cabin or two), together with a whole block of residential timber shacks, had been burnt to the ground during a too eager celebration of the Tibetan New Year a fortnight earlier. However,

this inconvenienced nobody. We spent a pleasant day, drank raw spirit with a number of people, and got back to the rope bridge rather the worse for wear. By the time we reached the right bank (where our steeds awaited us, it being difficult to sling ponies across a rope bridge) only one hour of daylight remained, and it was dark long before we got back to camp.

We must have behaved quite nicely during this visit, because a few days later we were invited again, this time to stay. Transport was procured, and on the 2nd April we finally set out for Rima.

Near the rope bridge we found the peerless *Stellera chamaejasme* in full bloom—many clumps of it—scattered over the grassy slope in thin Pine woods. Far more beautiful than any mere Daphne, it scented the air for yards around. The open flowers are white, salmon, orange, purple, peach coloured, coral red, or lemon. Some of the plants bore nearly a hundred flower heads, and judging from the size of the root-stock, might have been fifty or a hundred years old.

During the week we spent in Rima we found a number of good plants. At this point a big torrent (the La Ti), rising amongst glaciers on the Burma frontier, enters the Lohit, and in its gravelly bed, where it crosses the Rima terrace, protected to some extent by high banks from the desiccating wind, grow many shrubs as large as trees, and many trees as small as shrubs.

At this season particularly noticeable were a tiny leafed Cotoneaster (not unlike *C. conspicua*) bearing a huge load of blood-red berries; and an almost tree-like Pyracantha (*P. angustifolia*) similarly freighted with orange berries. It was surprising to see so much brilliantly coloured soft fruit in the first week of April. In spring many birds pass through Rima on their way up to the plateau, and again in autumn on their way down to the plains; there is also a good deal of vertical migration between the valley and the alps. But residents, it appears, are few, though in the summer I noticed flycatchers, bulbuls, thrushes, and others. However, by May all the bushes were stripped, so no doubt the migrants had been feeding freely—though the fact that the berries persisted throughout the winter was all that mattered.

Cotoneaster conspicua (if it was that species), by the torrent, grew into a big straggling shrub. It was coming into bloom, the little hawthorn flowers sweetly fragrant of almond oil. A form of it made dwarf heather-like tuffets hardly a foot high on the sun-baked, wind-swept slopes, and these too were plastered with vermilion berries.

As for the Pyracantha, it showed no sign of flowers till May, but then it was a wonderful sight, every branch and twig thickly lathered with blossom. Another charming shrub growing in thickets along the river's edge was a species of Myricaria, the fluffy pinkish purple flowers contrasting brightly with the glaucous foliage. This shrub has appeared in recent years on the plain near Sadiya, where the Lohit has piled up sand dunes. It must be a tolerant plant to stand both Rima and Sadiya! Mention may also be made of *Berberis Wallichiana*, Elaeagnus, Holboellia, Ilex, Salix (two or three species), *Quercus glauca*, and Diervilla.

A second species of Cotoneaster, resembling *C. Franchetii*, grows in the thickets. The creamy white flowers are deliciously scented, and the

leaves turn sheer scarlet in the fall. In late summer, the fruit ripens to a warm coral red. I give this species high marks for the unusual colour of the berries. It seemed, however, that the birds noticed them too. But will it be hardy?

It was rather unexpected to find a specimen of *Michelia lanuginosa* by the La Ti. But the most interesting tree here was an elm in full bloom, its leaf buds not yet open. *Ulmus lancifolia* is not rare in the Lohit Valley below Walong, and I had collected it on the way up; but this was a very different species (*U. Bergmannii*), a Chinese elm with unusually large leaves.

Looking up at the high cliffs above the La Ti to where, on slopes sheltered from the wind, pine forest was replaced by temperate mixed forest, we saw scattered blobs of white, which we decided must be either Magnolias or Rhododendrons—probably the former. So after a preliminary reconnaissance, we organized a climb, and toiled slowly up the steep pine-bracken slope following the brink of the ravine to a height of 7,500 feet, when cliffs intervened. Here grew fine Birches, *Cornus macrophylla*, *Rhododendron arboreum*, and the Magnolia we were in search of (actually another Michelia) in full bloom. Best of all was a short tree with a straight slender trunk crowned with sulphur yellow flowers in great numbers. But for the fact that it had no leaves, one would have said immediately that it was a Brassaiopsis; however, the Araliaceae are not deciduous, and, moreover, their leaves are alternate, whereas this tree was obviously going to have opposite leaves. So Brassaiopsis was out of court, and it was not till we secured a specimen that I realized what it was. The flowers, which were small, but borne on long pedicels, were arranged in crowded heads exactly as in Ivy or Panax (or, for that matter, Nauclea), and were exceedingly numerous. At the base of each globular inflorescence were four small, not very conspicuous bracts. The four-limbed corolla and opposite leaves suggested Rubiaceae, but the four bracts took one straight to Cornus, and Cornus it was—*C. chinensis* (also called *Macrocarpium chinense*)—from the horticultural point of view perhaps the most striking plant we found.

On the 10th April we set out for the Di Chu, a big torrent which, like the La Ti, comes down from the Burma frontier. Up the Di Chu goes a track which crosses the mountains by the Diphu La (about twenty-five miles distant), and so reaches the Irrawaddy, the journey from the Lohit to the Nam Tamai requiring about ten days.

Camp was pitched on a small terrace at the very foot of an exceedingly steep slope, on the right bank of the Di Chu and about half a mile from the Lohit. There was still a great deal of snow on the ranges across the Lohit, and up the Di Chu gorge, but no longer did it descend below 8,000 feet.

The narrow belt of broad-leafed trees growing on either bank of the torrent was swamped in an interminable sea of Pine. Outstanding was *Quercus glauca*, now breaking into new leaf, the young foliage, at first mahogany red, changing gradually through salmon tones to the pale green of a summer evening sky. A twining Lonicera, not unlike the English species but yellower, was something of a rarity, and so also was a Deutzia with rose pink flowers. *Vitis lanata*, handsome in foliage,

flower, and fruit, was quite common. It is one of the most attractive of vines, and looks particularly charming covering rocks, since it never reaches any great size. The grape-like fruits of *V. lanata*, together with yellow raspberries, gave us a much needed fruit ration for a month or six weeks. *Schoepfia jasminodora* flowered early, and the drupes were ripe and falling by August.

It was more than twenty years since I had first visited the Lohit Valley, and it seemed to me that the population between Walong and Rima (never more than two or three hundred persons) had decreased during that time. There was plenty of abandoned cultivation; and here, more or less in the open, grew scattered thorny shrubs such as *Cudrania cochinchinensis*, a useful hedge plant.

Across the Lohit the western alps, deep in snow, gleamed every morning and evening in a very tantalizing way. We did not doubt that before all the snow had melted we should be up there, on one side of the river or the other. Meanwhile we found that from the Di Chu camp only very limited progress could be made in any direction, except straight up and down the main valley. We had to wait nearly a month for porters, and then we got only six of the dozen we had asked for.

A very abundant plant which flourished on stony ground by the Lohit, and also as high up the mountain as far as pure Pine forest reached (that is, to about 7,500 feet), was a species of Lychnis. The flowers vary in colour from pale pink to deep rose or even crimson or more rarely white. At its best it looks a promising rock garden plant (though it is no alpine); but it needs a dry heat to do itself justice. Growing amongst grass and bracken in more sheltered places, it had not the same tufted habit, which is so characteristic of it in stony ground; in fact, it became distinctly weedy. The inference is that heat, light and drought suit it best.

Still later in May another notable plant flowered, right down by the river at 4,000 feet altitude—*Lilium Wardii*. It has a vertical range of about 4,000 feet, which implies a considerable difference of climate. It appears to be invariably associated with Pine forest, and with the annual burnings of grass-bracken undergrowth. I do not think it could have been abundant in the Lohit Valley twenty years ago; if it had been, I would have seen it, even in fruit. It is exceedingly common nowadays, and has spread across the frontier into Assam. But the plants do not compare in size with those found further north, in Tibet.

In order to "turn" the gorge of the Di Chu, which is quite impassable, it is necessary to climb high, then traverse the face of the tremendous cliff about 1,500 feet above the torrent. Every year a few people from the Seinghku Valley cross the Diphu La to buy salt in Rima, and there is a rough track the whole way, though it is not an easy journey at any season. We decided to explore the Di Chu as soon as we could get porters; but it was not till the 9th May that we were able to start.

As the six porters were carrying nearly 100 lb. each, we did not attempt to make long stages, and spent the first night on the upper terrace, barely a thousand feet above our base camp. The water holes were full of sweet water after the recent rain, and we approached the difficult traverse through the gorge next morning fresh for the ordeal. It

was a magnificent day, the young bracken drenched with dew. Half way through the gorge, on a boulder scree we noticed a white Jasmine with buds coral pink sprawling over the rocks. It looked like (but was not) *J. officinale*. In a belt of forest a Pyrus, with leaves like a white-beam, only more so, was in delicious flower; also *Acer pectinatum*, a close relative of the north-western Himalayan, *A. caudatum*. Finally we camped on the edge of the real mixed temperate forest, which promised untold treasure. There was barely enough room for a camp here. The altitude was 7,100 feet, and the path now descended for three hundred yards to meet the Di Chu just above the falls. We were through the gorge.

Within the forest *Pinus Armandi* replaced *P. insularis*, though on exposed cliffs the latter ascended another thousand feet, to *Vaccinium glauco-album* thickets. Other Conifers were Tsuga, Taxus, and *Picea morindoides*, the last named being the tallest and straightest tree in the valley. Conifers formed about fifty per cent. of the forest, which, seen from outside, with the tall fir spires rising high above the canopy, appeared to be composed entirely of this tree.

Nevertheless, it was the broad-leafed trees and shrubs, forming the lower canopy, which occurred in bewildering variety. Most noticeable were two shrubs, *Euonymus frigidus*, covered with tiny chocolate drops which danced to every passing breeze, and a Mahonia whose clusters of golden candles sprang from a circle of armed leaves. Amongst the lesser trees were several species of Prunus, Oaks, Willows, Sorbus, Eriobotrya, Hornbeam, the yellow *Cornus chinensis* (now in full foliage), and many others.

Across the gorge from our camp the forested cliffs rose to a great height; so near and sheer were they that it was only when lying on my back that, looking through a field glass, I could see a frill of shell pink lining the edge of a precipice. There was no doubt it was a dwarf Rhododendron. Could it possibly be *R. racemosum*?—for that was what its size, colour, and shape suggested. But *R. racemosum* is a plant of the open plateau further east, and nothing seemed more unlikely here. I felt certain it was a new species. Though I searched high and low for it on our side of the gorge, I never found it, nor was there any hope of getting it from the opposite cliff.

The fine sunny weather continued, and the next day I found a solitary Cherry, as beautiful in its way as the carmine Cherry. It was in full bloom and in young foliage at the same time. The dangling clusters of white flowers have a faint tinge of pink, but a more decided flush is given by the large fan-shaped crimson bracts, which persist throughout flowering. The rounded margin is toothed, and the closely crowded bracts overlap. Close by was another species of Prunus, like a bird Cherry, also in bloom. This was indeed a land of Cherries.

Rhododendron arboreum, represented by centuries-old trees with enormous trunks, was in full bloom. I never see a veteran specimen of "blood-red arboreum" in flower but I realize it is the monarch of the genus. It never palls, always looks brilliant. Other tree species which we saw higher up the valley were *R. sidereum*, *R. sino-grande*, and a 'Thomsonii' with rich cerise flowers. Shrub species included the best

pink-flowered form of *R. bullatum*, *R. megacalyx* (still in bud), and *R. manipurense* (hardly even in bud). At 10,000 feet near the hot springs the charming dwarf *R. riparium* coloured the rocks Tyrian purple.

Other shrubs appeared in fair variety, most of them in flower—Daphne, Deutzia, Cotoneaster, *Cornus oblonga*, three species of Ribes, one or two erect species of Lonicera, Berberis, and *Rosa Moyesii*—all very temperate. An interesting find was *Primula atrodentata*, which grew scattered in crevices of the cliff and on the precipitous grassy slope at the extreme limit of *Pinus insularis*, that is, at about 8,000 feet. Though past its best, it was still in flower, and if it had no claim to distinction, it was nevertheless my first Primula find. With it grew a Viola, having brilliant gamboge flowers darkly striped with fine lines—probably *V. biflora*.

An odious Aristolochia grew on the slopes below the granite cliffs at about the same altitude. The numerous large flat-mouthed flowers were a dim yellow with dull purple stripes, and a warty chocolate coloured shallow bowl. They emitted a powerful and disgusting odour. This is *Isotrema* (*Aristolochia*) *Griffithii*—no beauty—widespread in the eastern temperate Himalayas (Fig. 91). It seems curious that such revolting objects should grow cheek by jowl with supreme beauty. Take it all round, this short trip into the mixed forest belt, with its Conifers and its great variety of broad-leafed woody plants (many of them evergreen) was full of promise. It was unfortunate that we lacked the transport to go higher or stay longer.

During the next two and a half months very little happened. The weather was generally fine, and it grew mercilessly hot. We seemed always on the verge of getting transport, but the largest number of men who turned up together was never more than two. A pony, bringing us much needed rice from Rima, slipped off the dangerously narrow cliff path, fell a hundred feet into the Lohit whirlpool and was never seen or heard of again. We had warned the man not to bring laden ponies across this cliff, but the loss was ours just the same; we could ill afford the rice.

In August, with a single porter, we went up the gorge to collect seed of the delicate Cherry which had bewitched us in May. Every fruit had long since fallen, but careful search in the damp mould and undergrowth resulted in the discovery of twenty-one seeds, small and ovoid, which appeared to be viable.

When we got back to our base camp we were met with the unexpected news that at long last transport had been arranged for us to return to Rima. No less than twenty-five porters would arrive the following afternoon (August 9), and though we could hardly believe it, we got ready to move, and sure enough they turned up. The 10th was a viciously hot day, and the stark cliffs flung back the heat in waves. The traverse where, two months earlier, the pony had fallen to its death, had not been repaired, but it was less dangerous for bipeds than for quadrupeds.

Camped in Rima once more, we immediately began negotiations for transport to take us up to an alpine meadow situated three days' march up the La Ti gorge at an altitude of about 11,000 feet. This was soon

Photo, J. E. Downward

FIG. 78—*Camellia reticulata* 'Tayinhung' **A.M.** March 25, 1952, shown by The Director, R.H.S. Gardens, Wisley (See p. 227)

FIG. 79—The 15th-century mill with heaths and Azaleas in the foreground. *Buddleia Fallowiana* and *Carpentaria californica* by the gate

BULKELEY MILL

Photos, G. S. Thomas

FIG. 80—Part of the glade showing *Magnolia Kobus, Fitzroya cupressoides, Abies Forrestii* and *Betula neoalaskana*

Photo, G. S. Thomas

BULKELEY MILL

FIG. 81—Lysichitums by the waterside. In the foreground the ivory white hybrid *L. americanum* and *L. camtschatcense*

FIG. 82—Part of the Garden at Bulkeley Mill with *Spiraea nipponica* (left), *Cercidiphyllum japonicum* in background

BULKELEY MILL

Photos, G. S. Thomas

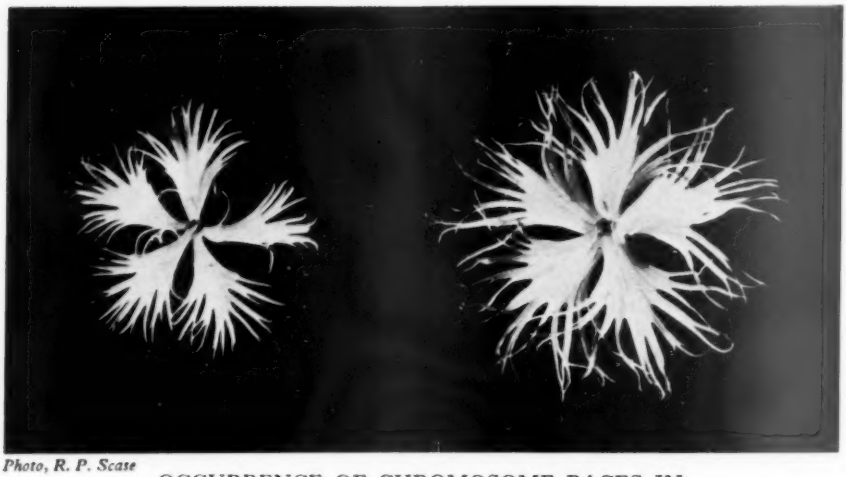
FIG. 83—The Glade: a shrubby corner showing *Acer griseum*, *Stephanandra Tanakae*, heaths and *Nothofagus procera* (right)

FIG. 84—The Glade, showing *Rhododendron oreodoxa*, *Cupressus sempervirens*, tree heaths and *Betula mandshurica szechuanica*

BULKELEY MILL

Photos, G. S. Thomas

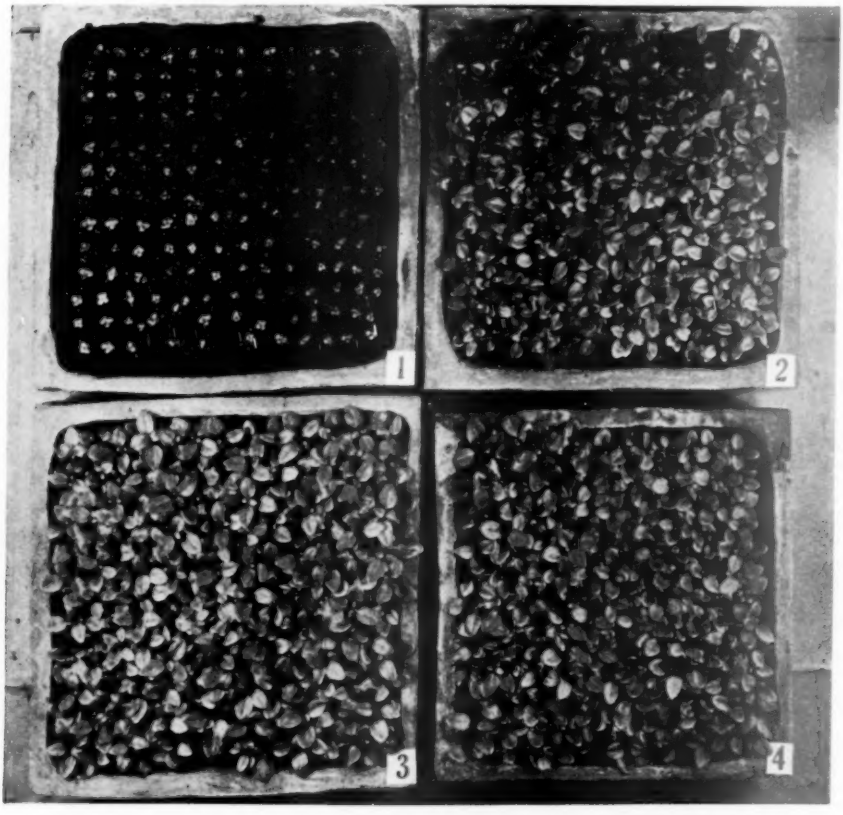
FIG. 85—A green path leading to the mill with (left) *Chamaecyparis formosensis*, *Acer nikoense* (right) and Dwarf Rhododendrons



Photo, R. P. Scase

OCCURRENCE OF CHROMOSOME RACES IN
DIANTHUS MONSPESSULANUS

FIG. 86—Diploid (small), tetraploid (large) flowers from Monte Tremalzo (Station IV), Italy (See p. 223)



HIGH PRESSURE MERCURY VAPOUR LAMP USED FOR
IRRADIATION OF PLANTS

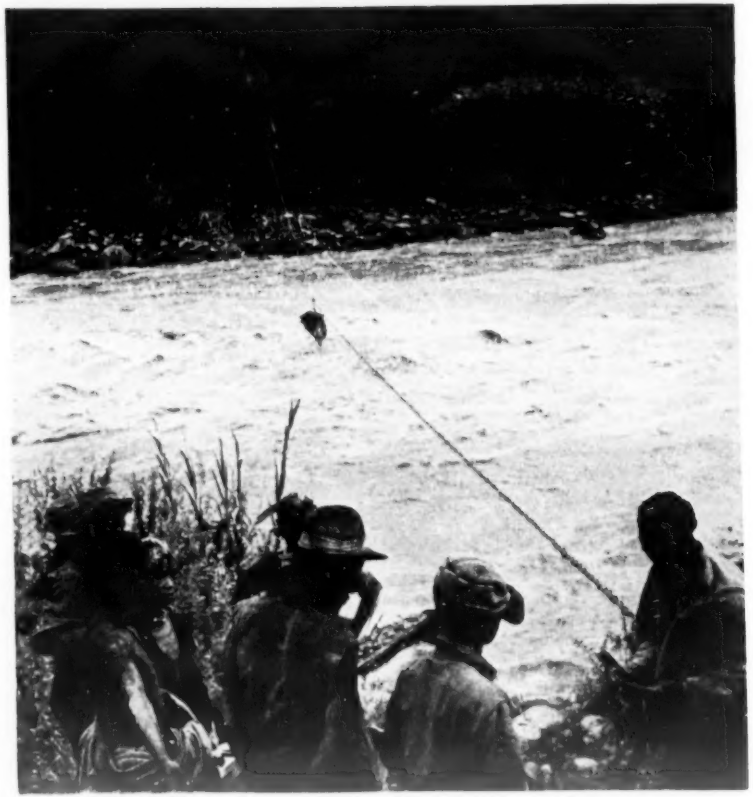
FIG. 87—Kalanchoe seedlings, var. 'Ernst Thiede.' Sown November 4, pricked out once, photographed February 7. Irradiated immediately after sowing, about 100 watts per square metre, 8 hours nightly. 1, without artificial light, but electrically heated; 2, high pressure mercury vapour light; 3, sodium light; 4, fluorescent light (See p. 220)

Photo, A. T. Johnson

FIG. 88—*Staphylea elegans* (See p. 225)

Photo, M. Amsler

FIG. 89—*Lapageria rosea* (See p. 224)



Photos, F. Kingdon-Ward

PLANT HUNTING IN ASSAM

FIG. 90—The rope bridge across the Lohit at Rima after the earthquake. Broken rope seen on the right (See p. 213)

FIG. 91—The saxophone-shaped flowers of *Isotrema* (*Aristolochia*) *Griffithii*. They are not beautiful but curious (See p. 212)

Photos, L. S. Clarke

FIG. 92—An 18th-century tree label carved on stone (See p. 215)

FIG. 93—A 19th-century tree label of stone, with an engraved metal plaque (See p. 215)

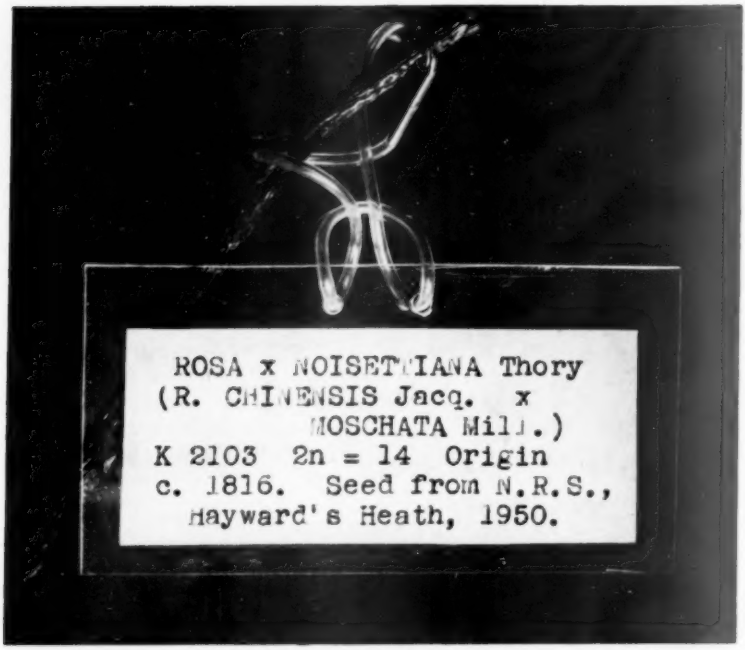
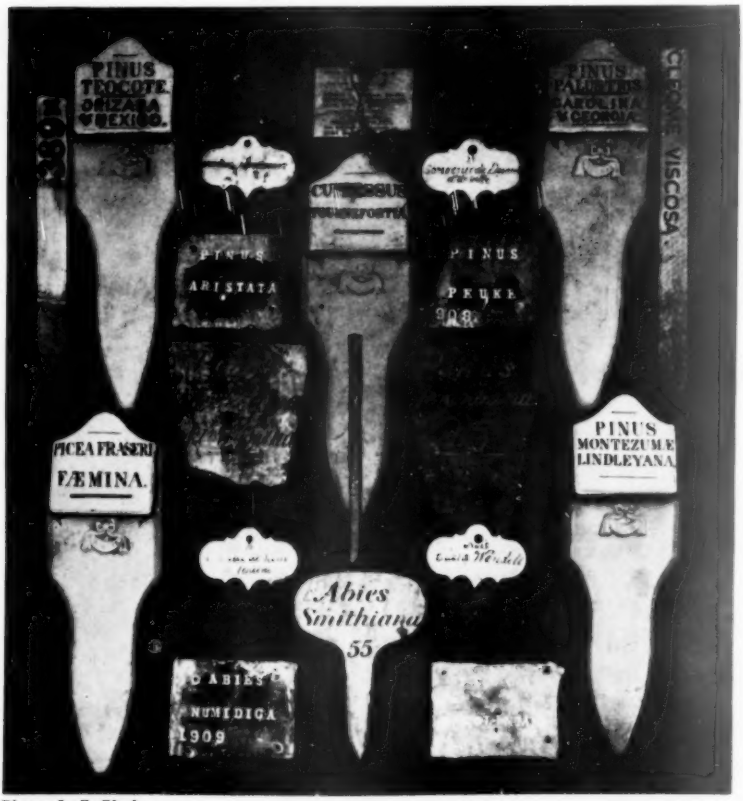


FIG. 94—Perspex-sealed label, showing mode of attachment to a slender branch
(See p. 216)



Photos, L. S. Clarke

FIG. 95—Early labels of wood, lead, earthenware, slate, pipeclay and zinc. A recent celluloid label (top, centre) is added as a curiosity, having been blown from the tree by lightning in 1951 yet without catching fire (See pp. 215–16)

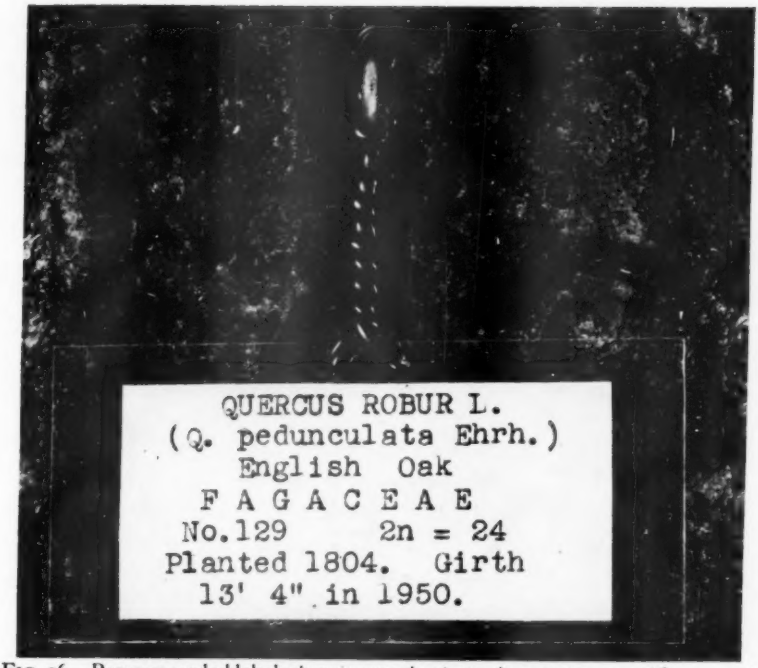
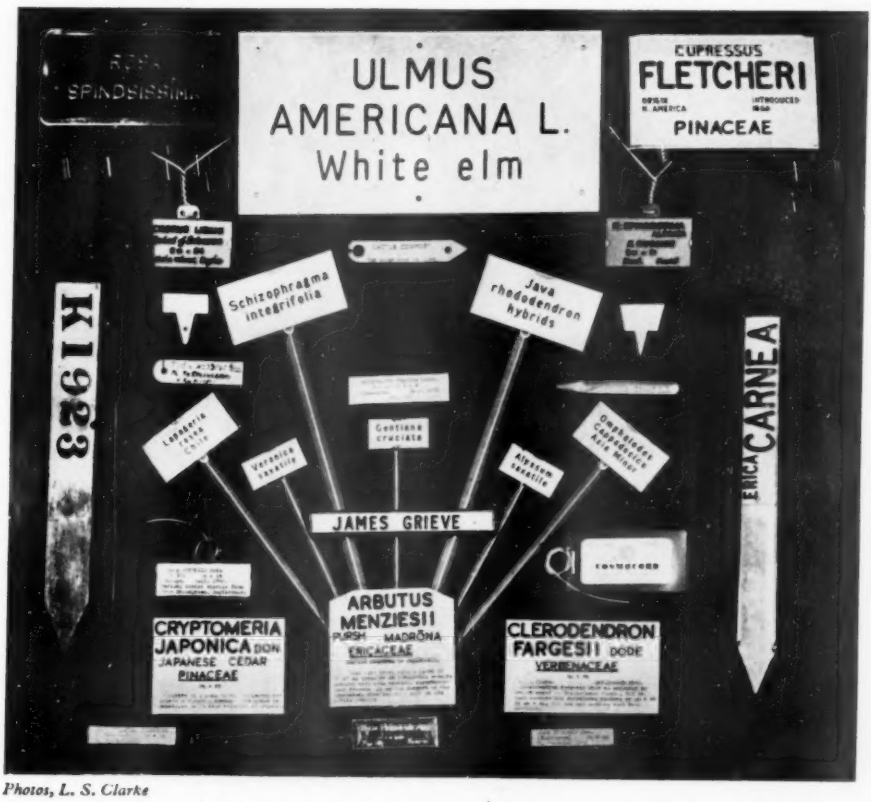


FIG. 96—Perspex-sealed label, showing mode of attachment to a tree (See p. 217)

PROBLEMS OF LABELLING



Photos, L. S. Clarke

FIG. 97—Modern labels employing perspex, cellulose nitrate, polythene and other transparent or opaque plastics and lightweight alloys (See pp. 215–16)

PROBLEMS
OF LABELLING

FIG. 98 — Equipment for sealing paper tags in perspex (See p. 217)

Photo, L. S. Clarke

arranged, and I was thankful we had held on during the four months' frustration. We should miss very little in flower above 10,000 feet, other than Rhododendrons, and could be trusted to recognize them by their foliage and fruits.

I collected foliage of *Ulmus Bergmanniana*. The small specimen of *Michelia lanuginosa* which I had found on the lowest terrace in April, had opened several of its delicate ivory and pale green flowers, with the delicious scent of lemon grass; and the fragrant Cotoneaster was already ripening its coral red berries, soon to incarnadine every thicket. *Cornus chinensis* we should meet with in the course of our climb, so there was no need to go chasing that.

We got all our loads ready, bought more rice and flour, cleared the presses, packed our specimens. The porters came to look at the loads, test their weights; they expressed themselves satisfied and the start was fixed for the 16th. And then, like a thunderbolt from the blue, irreparable disaster fell on us.

On the night of the 15th August, shortly after dark, without a moment's warning the earth began to shake violently, to leap up and down faster and faster. The noise was deafening. To the rending and tearing of the crust was added the terrible sound of the mountains breaking up, as millions of tons of rocks roared down the scuppers. A vast wall of dust arose and spread across the sky, blotting out the stars.

By good fortune we and the people of Rima survived the night of the great earthquake, but daylight showed that the devastation in the mountains was terrific. Had we been caught in the La Ti gorge we must all have been killed.

For the next three weeks we were marooned in Rima, unable to cross the river because the bridge was broken. On the last day of August a patrol of the Assam Rifles which, like us, had got caught by the earthquake and was unable to return to Walong, joined us. They were completely out of rations, and we gave them ten days' supply, thereby endangering our own position without greatly improving theirs, unless we could get across the river soon. However, by the 6th September, the Rima men had fixed a new rope in position, and we arranged to start for Walong on the 7th (Fig. 90).

Meanwhile I had been doing what plant hunting I could round Rima, which was little enough. We got seed of *Cornus chinensis* (it has wine-purple fruits), and of the fragrant Cotoneaster. *Cornus macrophylla* was not rare in the forest, its leaves turning a good colour. I found a lanky Adenophora with pale frail flowers on the upper terrace; and down below, *Ceratostigma Griffithii* opened a few more flowers each day, until by the beginning of September the bushes were looking quite blue. It is a great favourite with the "English" swallowtail butterfly, scores of which I saw fluttering over the bushes. However, the intense heat of August, and lack of rain, did little to encourage the vegetation. Apart from weeds in the paddy fields, there was very little in flower.

On the 7th September we all set out for Walong. The four marches proved a nightmare, and gave us a foretaste of the difficulties ahead. The cliff path had been entirely swept away by rock avalanches, which were still roaring down intermittently, and we had to traverse across

hair-raising slips under almost constant bombardment—more terrifying even than the possibility of falling over the precipice into the river. However, we all reached Walong without accident.

There followed a long wait of five weeks. It was still raining down the valley, the track was reported almost completely destroyed, and very dangerous, and porters in sufficient numbers were unobtainable. I made numerous attempts to get up the mountains, but they were so badly shattered it proved a difficult matter. Once I reached 8,000 feet, only to be stopped at an impossible traverse.

At last we found a path that would "go," and with four local porters I reached a camping ground at over 7,000 feet. Here I spent three nights, and on two consecutive days climbed to nearly 11,000 feet, but just failed to reach the tree line. However, in the forest I found more than a dozen species of Rhododendron, big-leafed and small, including *RR. rubrolineatum*, *cerasinum*, *niphargum*, and *crinigerum*, besides Pyrus, Sorbus, *Corylus ferox*, *Rosa setipoda* and *R. omeiensis*, *Viburnum kansuense*, Betula, Quercus, *Cotoneaster moupinense*, *Enkianthus himalayana*, and other cool temperate forest shrubs, most of which were in ripe fruit. One of the best plants I saw was a dwarf Berberis heavily burdened with red berries so that the branchlets drooped; a second powerfully armed species with autumn coloured leaves (*B. macrosepala* ?) bore large solitary fruits. A little orange-spotted Saxifrage of the Herculus type was scattered on bare earth.

It was impossible to camp higher up as there is no water when all the snow has melted. Moreover, we were due to leave Walong any day now, and I dared not postpone it in case we never again got porters. It began to rain and thick mist enveloped the mountains, so we returned to Walong, and three days later set out with twelve Tibetan porters for the plains. We had abandoned much of our kit, but of course we clung grimly to our hard won collections.

In spite of the horrible cliff traverses, we made the same marches as in February. In the lower part of the valley heavy rain delayed us for a week. The devastation as we approached the foot of the hills increased, and it was with feelings of great relief that on the 4th November we reached the plains, and Sadiya two days later. The head of the Assam valley had likewise suffered grievously from the after-effects of the earthquake, especially by flood.

We finished up an exciting year by flying up the Lohit Valley in a Dakota which was dropping supplies to Walong. Our reaction to a bird's eye view of the mountains was, that if we had seen the escape route from the air before starting back, we would be there still!

PROBLEMS OF LABELLING

G. D. Rowley

(*John Innes Horticultural Institution, Bayfordbury*)

"But he that filches from me my good name,
Robs me of that which not enriches him,
And makes me poor indeed."—OTHELLO, Act III.

THE correct identification and labelling of plants are old problems, and one cannot manage a garden for long without encountering them. Both pose the same impasse: the attempted marriage of something static and inanimate—a name, a label—with something as animate, as changing and as temporal as a living organism.

As regards the label problem, it must be understood at the outset that no two people agree on the type of label they like to see, the price they consider reasonable, and the sort of information they want written on it. A label can be anything from a paper tag scrawled "19/52" to an elaborate plastic or embossed metal plaque stating the plant's name, synonymy, pedigree, chromosome number, uses by the aborigines of Tasmania and, of course, the manufacturer's coat of arms. Figs. 95 and 97 give a thin cross-section of available kinds, old and new, costing anything from a fraction of a penny to two guineas each. I am sure there exist sufficient other commercial types to fill a dozen such plates.

Historical—A history of garden labels would make interesting reading, and would, no doubt, lead us back to the inscriptions on Roman baths and to the origin of writing itself. Nothing so comprehensive will be attempted here, but a few notes on post-Linnean trends might help to stress how great has been the revolution of the past half century.

Some survivals of the early days are shown in Figs. 92, 93 and 95. Indented lead seems to have rivalled stone carvings for durability, and was a great favourite of JOHN LINDLEY (1). In this JOURNAL for 1893 (2) we find references to plant labels in lead surviving from 1770. J. C. LOUDON used an elaborate "brick tally" when planting Derby Arboretum in 1840 (3): a solid pedestal set in concrete and having a printed paper tag glazed in a hollow in the slanting face. Twelve years later, however, the Derby and Bayfordbury arboreta were using earthenware labels of the type shown in Fig. 95, costing 1*s.* 3*d.* each and having the name fired on the glazed surface (4).

Label controversies raged a hundred years ago no less fiercely than to-day. All sorts of orthodox and unorthodox methods were tried, using as basis various woods, metals, ivory, porcelain, meerschaum and leather. Tying cords advocated by LOUDON (8) included leather thongs, catgut, and lead or silver wire. We read of methods of sealing paper slips in glass (5), of the virtues of old toothbrush handles as labels, and of a vogue for strips of the leaf of the Talipot palm around 1885 (6). Embossed zinc labels (7) came in early in the nineteenth century, and another firm pioneered the familiar type with black lettering fired on a rectangular tile: both kinds still in common use. But the advances of the

last century are slight compared with those made possible by the development of plastic materials and of new lightweight alloys (Fig. 97).

Permanence of Labels—The fact that a good label should be "permanent" is generally stressed, and may largely condition its selling price. But there is a limit to the expense justified in the search for longevity. Consider for instance the tall conifer labels already mentioned (Fig. 95). They are five of nearly 100 survivors of the magnificent set that adorned the Bayfordbury Pinetum in the days of LOUDON. The names fired on the surface are as legible today as when they were written. But how many of these labels could still be used? Only 37 per cent. of the names are still valid, considered by modern nomenclature, and of these only four of the trees for which they were made are still alive. A sad reflection on changing times and fashions!

Size—Two schools of thought influence the labelling policy of our botanic gardens and public collections. One holds that labels should be large, clear and declamatory; the other that they should be small, discreet and encroach upon the natural landscape as little as possible. Both methods have their drawbacks: the former runs the risk of one's garden being mistaken for a cemetery, the latter of trampled beds and verges where the enthusiastic minority have sought enlightenment. At Bayfordbury, a compromise has been adopted. In the arboretum a small but informative label is used throughout, whereas for shrubs growing in beds, as in the Rose Collection, a small label on each plant is supplemented by larger show labels placed in the beds opposite each group of species.

Mode of Attachment—Should a label be fixed to the plant itself, or placed in the ground beside it? In a glasshouse or herbaceous border the second is the only choice, but I am thinking more particularly of the larger woody perennials. For all its drawbacks, fixing the label direct to the plant has the supreme merit of minimizing errors of transposition. Even without the generous help of the public in "correcting mistakes," labels stuck in the ground are in perpetual danger of being lost or switched. Not that the other way is infallible in this respect, of course. Many a good plant has been damned to anonymity by its label coming adrift through insecure fixing. Continuous flapping in the wind makes a metal tag soon cut through its moorings unless care is taken to avoid sharp edges. On shrubs, the problem is complicated by the need to allow for expansion of the branches.

I have tried nailing labels direct to trees, but it is difficult to choose a nail just long enough to grip securely, yet not so long that subsequent growth breaks the label. A brass screw may be used instead, providing one can go round each year and unscrew it a little as the tree grows. The customary method of using a galvanized staple and attaching the label to it by a twist of wire is better, allowing for many years of growth before attention is needed. Trees seem to suffer no injury from a small nail or staple, save for a little gumming at first in some Pines and Prunus.

Plastic materials have solved many fixing problems. Polythene cord is tough, durable and quite resistant, retaining its elasticity so that a branch tied with it is never strangled (Fig. 94). Stiffened with wire, as

in ordinary single-strand bell-flex, it has proved ideal for fixing a lightweight label to a tree, and can be obtained in attractive colours for a neat effect (Fig. 96).

Experiments in New Labels—The special problems of labelling at Bayfordbury called for a label that was small but fully informative, moderately priced, capable of being produced in quantity (preferably on the premises), and long lasting, together with a mode of fixing that neither injured the plant nor demanded continuous upkeep. To satisfy the first two criteria, typewritten tags were adopted, and a method sought to make them weatherproof. Typewriting scores over all other methods of printing and stamping in speed and saving of time, and is particularly suitable for dealing with large numbers of names, all different.

At least two firms will seal paper tags in plastic to give a very neat product, but the tags have to be sent away in bulk for processing, and delay is unavoidable. Most durable are those sealed in polythene, but the cost is prohibitive. Cellulose nitrate mounts are cheaper but short-lived; in a few months they curl, discolour and become brittle. A new transparent co-polymer has recently been developed by the manufacturers of this type of label and from a short test appears to have improved weather resistance.

Of the various types of labels made on the premises so far, none has excelled a Perspex mount for neatness, durability, and all-round satisfaction. Perspex seems unchanged after two years outdoors, in water or in soil; it neither curls nor discolours, and is easy and clean to work. Its disadvantages are brittleness and high cost, together with what it is hoped is only a temporary embarrassment: the difficulty of getting supplies.

The John Innes Perspex-sealed Plant Label—In the method about to be described, the following raw materials are needed (See Fig. 98):—

1. PERSPEX ACRYLIC SHEET, CLEAR. Thickness $\frac{1}{8}$ inch or $\frac{1}{16}$ inch. Price 4*s.* 6*d.* per square foot, plus 20 per cent. for quantities below 48 square feet.
2. PERSPEX SOLUTION
   "Tensol No. 2 Cement" *or*
   Scrap Perspex dissolved in chloroform to give a thin syrup.
3. TYING CORD
   (a) For shrubs:
   TENATUBE TRANSLUCENT NATURAL: Internal diameter 1 mm. × 0·5 mm. walls. Price about £1 1*s.* per 1,000-foot reel (i.e. nearly 4 feet 1*d.*).
   (b) For trees:
   Any suitable single-strand plastic-covered bell-flex; price 1½*d.* per yard.

Procedure—Type out the labels on good quality absorbent, unglazed paper, cut them out, and immerse in Perspex solution until thoroughly saturated. Cut appropriately sized slips of Perspex sheet by scratching with a sharp instrument and snapping, and drill with one or

two holes for fixing. Remove a soaked tag with forceps and lay it carefully face downwards in the exact centre of a clean Perspex slip, and press out any air bubbles to the edges with a seeker. Ensure that the paper is amply covered with solution, and allow to dry. For shrubs, thread each label with a 6- to 8-inch length of Tenatube, and either knot the ends round the branch or, better, butt them together over a ½-inch length of wire just large enough to grip firmly. This gives a neat join, saves material and time. For trees, thread with a double twist of bellflex of the same length, and fix to both arms of a galvanized zinc staple to prevent swivelling. For plants under glass, wire the labels to stakes or to suitable parts of the glasshouse.

Notes on the Method—Processing a batch of tags is quite straightforward and takes less time than hunting for the information to go on the label. An ordinary black typewriter ribbon does not fade on long exposure, but some makes of ribbon give a blacker and clearer impression than others. If larger lettering is wanted, stencilling must be resorted to (as in examples in Fig. 97); there appears to be no limit to the size or variety of shapes that can be made. 3½ inches × 1½ inch is convenient for most purposes; 6 inches × 4 inches for show labels or plans of beds. A narrow, stick-in label 6 inches × ⅝ inch (Fig. 97, bottom) has proved successful for rock plants, and 2½ inches × ½ inch numbered tallies for seed pans and genetical crops.

Too thin a film of Perspex leads to an eventual erosion of the paper, although the writing remains legible. Normally the seal is permanent to the extent that only laborious scraping can remove the lettering, but it is practicable to make small alterations by scratching away the offending letters from the back and applying a patch.

A continuous vapour of chloroform is not an ideal working atmosphere, but I find no discomfort providing there is a good through draught to carry off the fumes.

The cost of these labels, it will be noted, is ruled by the cost of Perspex sheet—the paper, tying cord, etc. are negligible in comparison—and works out at about 2 square inches for a penny. It is therefore desirable to keep the size of labels down to a minimum and to save all scrap for making up more solution.

As regards wear and tear in the garden, breakages have been very few; birds take an occasional liking to Tenatube and succeed in causing minor havoc, and splashes from insecticides may cause discoloration. Otherwise, lasting properties are excellent. The Perspex-sealed label has many applications beyond these mentioned above, being suitable wherever a small notice or plan is required to stand up to the weather or fluctuations of temperature and humidity.

REFERENCES

(1) *J. Hort. Soc.* V (1850) xvi.
(2) *R.H.S. Journal* XV (1893) lvii.
(3) Loudon's *Gardener's Magazine* 16 (1840) 74, 521, 523.
(4) *J. Hort. Soc.* V (1850) xii.
(5) *Loc. cit.* VI (1852) xxxiii.
(6) *Gard. Chron.* N. S. XXIV (1885) 364.
(7) *Loc. cit.* XIII (1880) 119.

Useful Summaries of Label Types

(8) Loudon's *Encyclopaedia of Gardening* (1860) 535–9.
(9) Bailey's *Standard Cyclopaedia* II (1935) 1761–3.

A Label Museum—Mr. Rowley is making a collection of different types of plant label, new and old, and would greatly value any contributions. A number of the tall conifer labels shown in Fig. 95, some a hundred years old, are available for exchange if wanted. Of particular interest would be survivors of the eighteenth century, if, indeed, there are any.

HIGH PRESSURE MERCURY VAPOUR LAMP USED FOR IRRADIATION OF PLANTS

Dr. J. W. M. Roodenburg

BEFORE the war a special lamp for the irradiation of plants was introduced in Holland. This supplied the plant with the red light of low tension neon tubes. This light, which was used only in the hours of darkness, accelerated growth of greenhouse plants in winter and produced sturdier plants of a richer green.

Unfortunately this apparatus of high capacity (about 500 watts) was so expensive that few were sold and today the neon irradiation lamp is not available in the Netherlands. In its place a high pressure mercury vapour lamp is used. This has proved highly effective, providing that a stronger irradiation is used to offset the relatively weaker influence of the mercury light. This has been made possible in recent years by the increase of light energy emitted by the mercury lamps thanks to the high pressure of the mercury vapour.

It is true that good results can also be obtained with fluorescent tubes but according to technical information obtainable, it is not possible to construct this type of tube for high wattages with appreciable efficiency.

Since at least 50 to 100 watts per square metre are needed for irradiating seedlings, it would be necessary to install one or two fluorescent 40-watt tubes for each square metre. Secondly, in order to obtain an irradiation of sufficient intensity the tubes must be hung at a distance not to exceed twenty inches above the plants. Furthermore, to prevent loss of light good reflectors are needed. These cover a larger area as the tubes are nearly 4 feet in length. As a result these reflectors hang near to the plants and cast a great deal of shade by day. Although this difficulty could probably be surmounted, the fact remains that many tubes are required and that these are expensive, a separate choke and starter being needed for each tube.

All these difficulties are overcome by using a high pressure mercury vapour lamp, especially one of 450-watt (PHILIPS HO 2000) with a capacity ten times that of a 40-watt fluorescent tube. It is effective over an area ten times greater; it takes up little space being only about 1 foot long; it can be hung much further away from the plants (3–5 feet), throwing comparatively little shade by day. Lastly, when operating at a tension of 220 volts on alternating current it only needs a big choke. No special starter is needed.

The initial expenses of installation are not exorbitant, judging by the cost per square metre, which represents only about 20 per cent. of the price of a similar installation of fluorescent lighting of the same capacity. So this is an important step in our attempt to lower the cost of irradiation to such an extent that it may become possible for the market-gardener.

Experiments in raising seedlings in winter have demonstrated that it does not matter what the light source (viz. mercury, sodium or fluorescent) if the radiation is strong enough. With seedlings of Gloxinia, Kalanchoe and Begonia the noticeable differences were very slight. When using an installation providing 100 watts per square metre, results were practically as good as those with neon light (Fig. 87). All plants subjected to irradiation showed a better start than those grown normally. The obvious inference is to use the cheapest type of lamp, in this case the high pressure mercury vapour lamp.

Already years ago, the idea of illuminating greenhouse plants in winter with a spectrum resembling that of the sun was abandoned for economic and technical reasons, and one with rather low intensities and a spectral composition differing considerably from sunlight was substituted. The possibility of this had already been proved by our investigations on the application of neon light at Wageningen before 1940, but the use of high pressure mercury vapour lamps with a spectrum practically omitting the red rays needs some further explanation.

The application of artificial light in addition to daylight is done to influence certain processes only:—

1. *Photosynthesis.*

We found that neon light was the most suitable for carbohydrate assimilation but also that with equal intensity of radiation, sodium light was not less growth-promoting. The same is true for the radiation of mercury lamps, containing among others spectral lines in yellow and green. These will give about the same effect as the yellow sodium line, while two strong lines are to be found in the blue-violet end of the spectrum in the secondary assimilation maximum. Though the assimilation effect is lower than with neon light, it is easy to reach the same amount of photosynthesis, if we but provide a sufficient intensity of radiation. This can now be achieved practically by the use of high pressure mercury vapour lamps of high capacity.

2. *Effect of day-length.*

It has been known for a long time that low light intensities may yet be sufficient for lengthening the period of daylight. Nevertheless, if too low intensities are chosen, they may be employed with little or no result, the sensitivity of the plant-species also playing a part. The spectral composition of the light source used is here very important. I had demonstrated years ago that for the Strawberry the strongest day-lengthening effect was obtained by using incandescent lamps. Neon light was less effective and weak mercury vapour light acted like darkness. These differences disappear at higher intensities, so that also with mercury vapour light a complete long-day effect may result, if only the

radiation provided is strong enough. As in the case of photosynthesis high intensities are required, the use of mercury vapour light does not present any difficulties in this kind of application.

3. *Effect of blue-violet rays.*

In most cases the daylight supplies sufficient blue-violet rays for greenhouse plants, even in winter. Nevertheless, there are plants needing a very great deal of blue-violet rays. In neon light only, daylight being excluded, Tomatoes develop narrow curly leaves, which do not spread out quite flat. So, as one might expect, in very dark periods those plants in the greenhouse profit by the blue-violet rays of the mercury vapour lamps. Physiologically viewed, this is the only factor which makes mercury vapour light preferable to neon light. When cultivating plants without daylight, this property is even indispensable. So, it is possible to cultivate plants with normal leaves, when a very strong illumination of mercury vapour light is provided exclusively.

A particular problem is constituted by the anomalous growth in length which may become a difficulty when artificial light is used. On the whole one may say that it seldom happens with the various gas discharging lamps, at least when the temperature is suited to the treated crop. The difference in this respect between neon light and mercury light is not considerable, in view of the expectation that the blue-violet rays of mercury light might have a restraining influence. This is not the case with the intensities normally used, though the growth in length is not so strong by far as under incandescent lamps, which have an extensive stretching influence. It is remarkable that the infra-red radiation of the high pressure mercury vapour lamp does not appear in the short wave region that calls forth such a strong stretching growth in the case of the incandescent lamp.

All things considered, as has been observed, in irradiation of plants mercury vapour light can replace the sunlight, though its spectrum is not in any respect similar to that of the sun.

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NOTES ON THE OCCURRENCE OF CHROMOSOME RACES IN DIANTHUS MONSPESSULANUS IN NORTHERN ITALY

E. K. Janaki Ammal, D.Sc., and Dr. Richard Seligman

THERE are about two hundred and fifty species included in the genus *Dianthus*. They are distributed through Europe, Temperate Asia and North and South Africa. About 76 species are found in Central Europe. Of these 17 occur in Northern Italy. *D. monspessulanus* described as early as 1762 by LINNAEUS is one of them. This species is also found in mountain pastures of the Pyrenees, in Spain and Portugal.

In June 1932 one of the authors (R. S.) paid a visit to Storo in the Giudicaria in Northern Italy. At about 500 metres altitude in the Val Ampola (Station I in map), which at Storo debouches into the valley of the Chiese river, was found a Dianthus which was identified as *D. monspessulanus*. This plant flourished for many years in a limestone scree at Wimbledon but has recently shown signs of exhaustion.

In July 1948, a second visit was paid to Storo (Cf. *Quarterly Bulletin of the Alpine Garden Society*, June 1949, p. 121), but no Dianthus was found in the lower part of the Val Ampola up to an altitude of about 600 metres. At its upper end the Val Ampola is continued by the Valle di Ledro which runs down eastward to the Lago di Gardo which it reaches about 2½ kilometres south of Riva. On the banks of the road which runs through this valley along the shore of the Lago di Ledro, *D. monspessulanus* (Station II) was growing freely at about 680 metres altitude, and plants were brought back and planted in various positions in the garden at Wimbledon. In 1949 and 1950 further collections were made at a number of points round the lake. The plants collected in 1948–50 differ appreciably from those of 1932. They are larger, the leaves broader and of a fresher green than the wiry grey-green leaves and stem of the earlier plant. To determine if the change in the 1932 plant was a result of long cultivation, the search for plants in and near Station I was continued, but without success, but in June 1950 plants were found in the upper part of the Val Ampola at about 725 metres altitude (Station III in map). These were, however, similar in general appearance to the Lago di Ledro plants.

In 1949 *D. monspessulanus* was found at several other stations in the district, but generally at greater altitudes. Thus between the Monte Tremalzo and the Corno della Marogna at about 1,750 metres (Station IV) seeds were collected and sown in March 1950. On Monte Cadria plants were found at 1,600 metres (Station V) and at 1,950 metres (Station VI), but no plants are available from the seeds collected. On Corno d'Impechia two stations were also found, one at 1,300 metres (Station VII) and one at 1,700 metres (Station VIII). From the former seeds were collected which were also sown in March 1950. Plants grown from these seeds appear to have foliage which is less abundant and of a less fresh green than those of the Valle di Ledro plants, where as the flower stems are appreciably longer and the flowers larger.

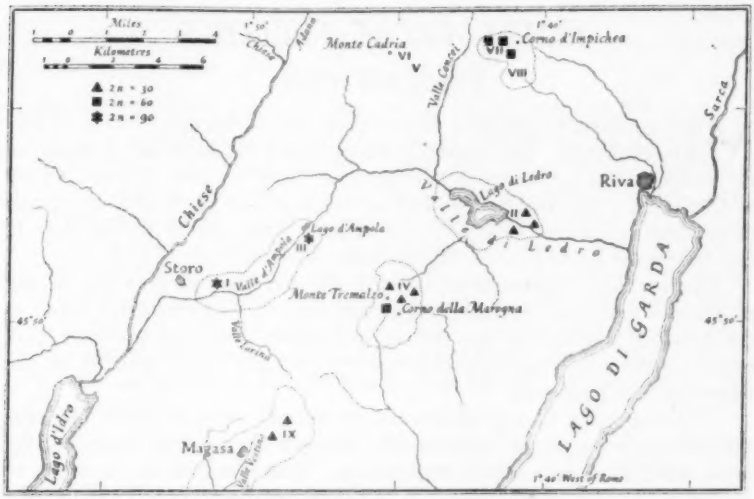
Finally, seeds were collected near Magasa in the Valle Vestino at 1,100 metres (Station IX).

Plants from all the seeds sown were distributed to a number of gardens.

In the summer of 1951 one of the authors (E. K. J. A.) determined the Chromosome numbers of such plants as were available and the findings are given below.

1. The plants collected in 1932 at Station I and in June 1950 at Station III in the Valle d'Ampola had 90 chromosomes and were thus *hexaploids* ($2n = 90$; $x = 15$).

2. Three plants from the Valle di Ledro (Station II) and those from the Valle Vestino near Magasa had only 30 chromosomes and were diploids ($2n = 30$; $x = 15$).



3. Those from Corno d'Impechia, Station VII with larger flowers and longer stems, had $2n = 60$ and were thus tetraploids.

4. Those collected between Monte Tremalzo and Corno della Marogna (Station IV) were a mixed population of diploids and tetraploids, the tetraploids being always larger flowered than the diploids (see Fig. 86).

It would appear, then, that in *D. monspessulanus* there are three chromosome races, of which the diploid and hexaploid are small flowered and difficult to differentiate by flower size alone whereas the tetraploid is larger than either of these. In this respect this species of Dianthus is very like the cultivated Daffodil, in which the maximum flower size is found in the tetraploids, and hexaploids, though occurring in cultivation, have passed unnoticed by growers. (Cf. *Daffodil Year Book*, 1949.)

In general, the tetraploid plants of *D. monspessulanus* were found at higher altitudes than the diploids or hexaploids, but this point can be finally determined by more extensive population studies of this interesting species. A single plant of *D. monspessulanus* collected from the Pyrenees and grown in the Dianthus collection at Kew garden was found to be a diploid ($2n = 30$).

NOTES FROM FELLOWS

Lapageria rosea

Many gardeners appear to shy at this, one of the most lovely of liliaceous plants. The reason given is, that it is too tender, at least for the home counties, but my own experience does not bear this out. Two or three of my plantings date back for some fifteen years and any shrub or climber which has weathered the first two winters of World War II can hardly be turned down on the score of tenderness (Fig. 89).

During those two winters when I was too busy to give any of my plants any attention or sheltering cover, both Lapagerias were killed to the ground, but during the following summer they put up their dark brown stolons and quickly climbed up into the dead remains of the previous year's growth.

Unfortunately Lapageria flowers on the old wood so however brave a show it may attempt to make after having been partly destroyed by frost, no flowers will appear that season. The moral to this is to try to preserve the old wood as well as the base of the plant. I now pack a quantity of dry straw around the "vines" as they emerge from the soil and keep a sheet of hessian hanging by one corner at the top level of the plant. This may not be decorative for one's house, but with the advent of real cold one has only to hitch this covering across the plant on to a convenient nail, where it is left until the cold ceases. (*N.B.* No evergreen likes to be kept for long in the dark.)

In this garden I now have Lapagerias on each of the four aspects of my house, and although my photograph was taken from the plant on the north wall I have come to the conclusion that it is happier when facing west, and it is on the west wall that I have this year also planted the albino form, *Lapageria rosea* var. *alba*. This is, if possible, even more beautiful than its type—but being a rare variety I have not been able to obtain any information as to its hardiness outdoors as a wall plant. Great, then, was my joy when I found about a dozen fruits on one of my plants facing west. This was in April of last year, and the green ovoid fruits varied from acorn size downwards. These seed pods take a long time to mature, and then are fairly soft and the size of a small damson. My last pod was only just ripe by the time the first flowers were opening in early October, so one may guess that, as in the case of some Cyclamens, one may have to wait nearly a year for ripe seed. In order that I should not overlook any of my valuable fruit through their being smothered by the year's growth I painted each one with aluminium paint and these Christmas-tree ornaments much intrigued my friends and visitors, in fact I am ashamed to admit that I allowed one or two to go away without enlightenment!

So popular was my seed, that for the past three weeks I have pollenated each of my blooms almost daily and hope for a bumper crop in 1952.

On October 10th I sowed a quantity of fresh seed in Vermiculite, in less than six weeks seedlings are coming through (temp. 65°–70°). My previous experience has been that autumn sown seeds germinated the following spring and I have corroborated statements that at Edinburgh seed has taken up to 2½ years to come up.

Moral. If you can get it, use "green" seed—but I do think the use of Vermiculite has a bearing here, for I see no signs, as yet, of any growth in pans where I used John Innes seed compost.

From *Sixty-three years of Engineering*, by SIR FRANCIS FOX.

> "I was anxious to get the *Lapageria alba* as well as *L. rosea* to perfection. We succeeded in doing this by observing that this plant needed the early actinic rays * of the morning sun (*sic*). We built a conservatory facing due east and so placed that all the sun is excluded after 1 P.M. by the dwelling-house, and the plants are in the cool shade for the rest of the day. We counted on some occasions as many as 750 of these beautiful red, or white bells 4 inches long and we have cut at times bunches carrying as many as 25 to 28 blooms on one stalk. In one particular year we recorded 7,000 blooms on two plants which were two of the finest grown in England."

SIR FRANCIS FOX was in his time the greatest of our civil engineers and was the moving force in the building of the Crystal Palace, the London Railway Tubes, the Simplon Tunnel and many other great feats of engineering; he was also a social worker of repute. His probity is therefore beyond dispute, but if further proof of his success as a gardener were required, I have the word of the late MR. A. GROVE, also an engineer, that he had on more than one occasion, witnessed the breath-taking beauty of those two Lapagerias.

MAURICE AMSLER

Hawkhurst,
Kent.

Staphylea elegans

This beautiful shrub is said to be a hybrid between S. *pinnata* and *S. colchica*. It is therefore synonymous with, or a form of, *S. Coulombieri*, a hybrid of the same parentage, but how or when it had the distinguishing name of "elegans" bestowed upon it I do not know. It is listed by the nurseries as *S. elegans*, though some prefer the cognomen of *S. Coulombieri grandiflora*. Garden value, however, having priority over names, this is a fine upstanding deciduous shrub which has with me attained over 10 feet. The leaves, consisting of three or five ovate-oblong leaflets up to 6 inches in length, are a full-toned green and eminently graceful. Soon after they have appeared in early summer flowers are borne towards the ends of the branches, and these, white-petalled with black anthers, are carried in drooping panicles which may be as much as a foot in length. Against their background of bright green these inflorescences are marked by a dainty elegance and they are freely produced in succession over several weeks. We have had no trouble with this attractive shrub which is doing nicely in a well-drained, rather sandy soil. It is given no attention in the way of feeding or pruning, but, since it throws up vigorous off-sets from the base, a removal of some of the old wood may sometimes be desirable. I have seen its young shoots

* My gardener, who is also a photographer, tells me that using an actinometer he finds the sun's rays most active in the mornings even though, to the eye, they may appear more powerful at noon and later.

slightly injured by spring frosts, but it is otherwise quite hardy and may be propagated by detaching rooted offsets. It has never yielded any of the Bladder-nuts so characteristic of the family (Fig. 88).

A. T. JOHNSON

Bulkeley Mill,
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AWARD OF GARDEN MERIT—LXXXVI

409 Escallonia 'Apple Blossom'

Award of Garden Merit, July 31, 1951

This especially attractive Escallonia forms a shrub of graceful arching habit. The foliage is a lustrous green, dark and evergreen in most climates. It produces masses of apple blossom pink flowers of an unusual delicate shade in profusion in late summer and early autumn. It is free growing, equally good as a specimen or in a mixed shrub border or as a loose hedge, particularly in windy areas near the sea where it may be used as an effective windbreak. It is easily propagated from cuttings which should be taken from half ripened wood in late summer, preferably with a heel. It roots quickly with or without light bottom heat and the plants will grow quickly when planted out in any reasonable moist soil. *E.* 'Apple Blossom' received an Award of Merit in 1946. This plant was introduced by the Donard Nursery Co. of Newcastle who have introduced so many fine Escallonias.

410 Kniphofia Galpinii

Award of Garden Merit, April 3, 1951

This delightful dwarf Kniphofia from the Transvaal is a plant of great distinction. It seldom exceeds 2 to 3 feet in height and produces in early autumn stalks of clear orange pendulous tubular flowers above the narrow linear dark green leaves. It is free blooming and of a refinement which is not common to some of the other members of the genus. It is not a fastidious plant, growing happily in any well drained sunny site in good soil. However, it needs ample moisture in the growing and flowering periods. This plant is well adapted to the border or to the large rock garden where it is particularly effective, as anyone who has seen it flowering at the Royal Botanic Garden, Edinburgh or Wisley will agree. Previously, in 1930, *Kniphofia Galpinii* received an Award of Merit.

411 Lonicera japonica

Award of Garden Merit, July 31, 1950

A native of Japan, Korea and China, this delightful twining Lonicera was first introduced to this country in 1806 and it is odd that it has not received this award long ago, for it is an exceptionally vigorous, floriferous and fragrant climber. It also has the great advantage of being evergreen. It grows with great vigour reaching heights of 20 to 30 feet if not pruned back. It is excellent for a wall or trellis, and can also be

effective if allowed to climb over an old tree or a hedgerow. It flourishes in any good garden soil in full sun or partial shade. The very fragrant flowers, as much as an inch and a half in length, white tinged purple, ageing to straw yellow, are borne in axillary clusters in June and July and intermittently thereafter until frost. These are followed by black fruit. The leaves are ovate to oblong, one to three inches long, downy on both sides. This lovely Lonicera is an easy plant and it is so useful as an evergreen cover. Best of all though is the scent, especially at night, and it is one of the most attractive plants for bees.

412 Osmarea × Burkwoodii

Award of Garden Merit, June 12, 1950

This fine hybrid is a cross between *Osmanthus Delavayi* and *Phillyrea decora*. It is fine hardy evergreen shrub of spreading habit, attaining a height of 8–12 feet and covering a large area if not planted too closely to other shrubs. Each April or early May it produces an abundance of axillary and terminal clusters of sweetly scented, tubular ivory white flowers. The foliage in itself is handsome, for the leaves, 1–2 inches in length, are pointed and toothed and of a lustrous dark green. It is a particularly good plant, grown either as a specimen or in a mixed shrub border. It likes a good rich loam and is best propagated from cuttings in late summer.

413 Salvia haematodes

Award of Garden Merit, September 25, 1951

This handsome Salvia, collected by MR. E. K. BALLS in Greece, should find its place in all herbaceous borders where there is sufficient room to show it off to good advantage for its 3- to 4-foot stalks are branched and spreading. Even the large rosettes of coarse stalked leaves from which the flower stalk arises need space if their pattern is to be enjoyed. The large light violet flowers are borne in whorls of six in tiers. It is an easily grown plant, thriving in any good garden soil and preferring a sunny location. It is best treated as a biennial, coming easily from seed. *Salvia haematodes* received an Award of Merit in 1944.

PLANTS TO WHICH AWARDS HAVE BEEN MADE IN 1951 AND 1952

Camellia reticulata 'Tayinhung' A.M. March 25, 1952. This is one of the many garden varieties of *Camellia reticulata* cultivated in Yunnan. It has ovate or elliptic-ovate leaves about 3 inches long, dark green and reticulate above, paler beneath. The flower exhibited was nearly 6 inches in diameter, nearly globular, and made up of about twenty-five broad-obovate deeply notched and waved petals of Phlox Pink (H.C.C. 625/2–3). Exhibited by The Director, R.H.S. Gardens, Wisley, Ripley, Surrey (Fig. 78).

Cotoneaster × 'Watereri' A.M. December 4, 1951. This highly decorative shrub, believed to be a hybrid between *C. Henryana* and *C. frigida*, appeared as a chance seedling from *C. frigida* in Messrs. Waterer's Bagshot nurseries some years ago. It is evergreen or semi-evergreen, and has dark, rather dull, green leaves up to 4 inches long, tapering towards each end. The plentiful globose scarlet berries, each ¼-inch across, are borne in compact clusters of as many as forty or fifty at the ends of short leafy twigs. Exhibited by the Commissioners of Crown Lands, The Great Park, Windsor, Berks.

Hyacinthus azureus var. albus A.M. March 16, 1951. A fine pan of this lovely species from Asia Minor was well shown. Like the type this variety produces a closely packed spike of flowers about 2–3 inches high. Each flower is pure white when fully opened and while still in bud, a shade of light green. Exhibited by W. P. Wood, Esq., South Stoke Vicarage, nr. Reading, Berks.

Pratia Treadwellii A.M. November 6, 1951. This is a hardy, creeping plant which roots freely from long, thin stems and thus soon forms a thick mat of foliage. Its small, orbicular and bluntly serrated leaves are ¼-inch in diameter and alternately placed. The white Lobelia-like flowers are larger than those of *P. angulata* and are followed in the autumn by large, succulent fruits coloured an attractive shade of Roseine Purple (H.C.C. 629/1). Exhibited by The Director, R.H.S. Gardens, Wisley, Ripley, Surrey.

ORCHIDS

Cypripedium 'Polpier Stonehurst var.' A.M. November 20, 1951. The flower was 5½ inches in diameter and of good form and substance. The dorsal sepal was deep purple margined with white, while the petals and labellum were deep crimson-purple suffused at the margin with greenish-yellow. The result of crossing *C.* 'Nancie Gamble' with *C.* 'Edenbridge.' Raised by Mr. S. Farnes and exhibited by R. Strauss, Esq., Stonehurst, Sussex.

Cypripedium 'Whitemoor Ashlands var.' F.C.C. December 4, 1951. The flower was well shaped, 5 inches in diameter, with translucent pale ivory petals and sepals. The labellum was a rather deeper shade of ivory and the petals and dorsal sepal were very slightly frilled. The result of crossing *C.* 'Dervish' with *C.* 'F. C. Puddle.' Exhibited by R. N. Palmer, Esq., Ashlands, Wormley.

Eulophia Welwitschii A.M. May 22, 1951. An interesting species from Kenya collected by the Oxford Exploration Club in 1939. There were two spikes, each carrying twelve flowers on stems about 5 feet high. The sepals were green shaded with bronzy purple and the petals a clear shade of lavender. The labellum was green, clearly veined with bronzy purple. Exhibited by the Director, University Botanic Garden, Oxford.

Laeliocattleya 'Arcadia' var. 'Chelsea' A.M. May 22, 1951. There were two flowers of good form and substance, 5½ inches in diameter. The sepals and petals growing rose-purple and the labellum ruby, yellow at the base, both the petals and labellum being frilled. The result of crossing *Cattleya* 'Jupiter' with *Lc.* 'Areca.' Exhibited by Messrs. McBean's Orchids Ltd., Cooksbridge, Sussex.

Laeliocattleya 'Arcadia' var. 'Regal' A.M. April 17, 1951.

The flower was 6 inches in diameter, and of good substance. The sepals and petals were a bright shade of orchid purple, the petals only being frilled. The labellum was rosy-purple with a deep yellow base and a frilly margin. The result of crossing *C.* 'Areca' with *Lc.* 'Jupitus.' Raised and exhibited by Messrs. McBean's Orchids, Ltd., Cooksbridge, Sussex.

Laeliocattleya 'Chorley' var. 'Winter Charm,' A.M. November 6, 1951. The flower was of good form and substance, 7 inches in diameter, the sepals and petals pale purple, the latter flushed with darker purple towards the tip and slightly frilled at the margins. The labellum was deep glowing purple with orange-yellow cheeks and very frilly edges. The result of crossing *Lc.* 'Holt' with *Lc.* 'Hadlow.' Exhibited by Messrs. Stuart Low Co. Ltd., Jarvis Brook, Sussex.

Laeliocattleya 'Golden Hind' var. 'Plymouth Hoe' A.M. September 11, 1951. The flower was 5 inches in diameter, of good form and substance, the petals and sepals coloured deep saffron yellow and the labellum velvety crimson-purple veined with orange. All three were strongly frilled. The result of crossing *Lc.* 'Derna Langley var.' with *Lc.* 'Golden Joy.' Raised and exhibited by Messrs. Black & Flory, Ltd., Slough.

Lycaste 'Olivia' A.M. July 31, 1951. The plant bore four flowers, each 3 inches in diameter. The sepals were of good substance, olive green, very faintly tinged with crimson, while the petals were pale pea-green with recurved tips. The labellum was similar to the petals in colour except for a crimped margin and recurved apex of creamy-white. The column was also creamy-white, the base stained crimson. The result of crossing *L. xytriophora* with *L. locusta* 'Sanders' var.' Exhibited by Dr. Wm. Stirling, Whatcroft Hall, nr. Northwich.

Miltonia 'Beethoven' A.M. May 22, 1951. There were two flowers on the spike, each 4 inches in diameter, ruby-purple in colour, broadly margined pale rose. The mask was clearly defined and suffused with crimson. The result of crossing *M. lychena* 'Stamperland var.' and *M.* 'Mrs. J. B. Crum.' Exhibited by Messrs. H. Dixon & Sons, Spencer Park Nursery, Wandsworth Common.

Miltonia 'Lingwood' A.M. March 20, 1951. There were three flowers on the spike and also one unopened spike of three flowers. These were 4 inches in diameter, glowing ruby with a well-marked yellow centre. The result of crossing *M.* 'Princess Mary' with *M.* 'Mrs. J. B. Crumb.' Raised and exhibited by Messrs. Black & Flory, Slough.

Miltonia 'Robert Paterson Stonehurst var.' A.M. May 22, 1951. The spike carried four flowers, each 3½ inches in diameter, of deep velvety ruby-crimson. The mask was clearly marked by a rosy-purple margin shading to golden brown at the centre. The result of crossing *M.* 'Mrs. C. Holmes' and *M.* 'Mrs. J. B. Crum' var. 'Chelsea.' Exhibited by R. Strauss, Esq., Stonehurst, Ardingly, Sussex.

Odontioda 'Avala' var. 'Whatcroft Hall' A.M. March 20, 1951. There were ten flowers on the spike, each 3 inches in diameter. The sepals, petals and labellum were China Rose in colour and somewhat frilled. The crest was yellow. The result of crossing *O.* 'Sabrina' with *O.* 'Argia.' Exhibited by Dr. Wm. Stirling, Whatcroft Hall, nr. Northwich.

Odontioda 'Chargia' var. 'Ideal' A.M. May 22, 1951. There were ten flowers of good form and substance in the spike, 3½ inches in diameter with fimbriated sepals and petals. The sepals and labellum were white sparingly spotted with brownish-crimson and lightly shaded pale purple. The petals were white and the crest yellow. The result of crossing *O. Charlesworthii* and *O.* 'Argia.' Raised and exhibited by Messrs. Charlesworth & Co. Ltd., Haywards Heath, Sussex.

Odontoglossum 'Aldonia' A.M. June 12, 1951. There were 4 flowers in the spike, all of good form and substance and about 4½ inches in diameter. The sepals, petals and labellum were all similar, being frilled, mottled and flecked with lilac-purple. The result of crossing *O.* 'Alperor' with *O.* 'Tordonia.' Exhibited by S. Tharp, Esq., 10 Farm Lane, Purley, Surrey.

Odontoglossum 'Alispum' var. 'Florence Stirling' A.M. May 22, 1951, A delightful plant with an arching spike of eleven large flowers of good form and substance. The sepals, petals and labellum were white, marked with brownish crimson and frilled. The result of crossing *O. crispum* with *O.* 'Aloreus.' Raised by Messrs. Charlesworth & Co. Ltd. and exhibited by Dr. Wm. Stirling, Whatcroft Hall, nr. Northwich, Cheshire.

Odontoglossum 'Crispiana' var. 'Whatcroft Hall' A.M. November 20, 1951. There were five flowers in the spike, each about 2½ inches in diameter. The sepals, petals and labellum were canary-yellow with light chestnut markings, all were frilled. The result of crossing *O. crispum* with *O.* 'Ascania.' Raised by Messrs. Charlesworth & Co. and exhibited by Dr. Wm. Stirling, Whatcroft Hall, Northwich.

Odontoglossum crispum 'Winston Churchill' (Premier form) A.M. April 17, 1951. The spike bore 5 flowers, each 4 inches in diameter and of good substance. The sepals were white, faintly flushed pale purple, while the petals were similarly coloured but with the purple coloration on the margins. The labellum was white with a small red-brown spot and yellow crest. All were attractively frilled. Raised and exhibited by R. Strauss, Esq., Stonehurst, Ardingly, Sussex.

Odontoglossum 'Gorispum' A.M. May 1, 1951. The plant bore a spike of six flowers, each 4 inches in diameter. The sepals and petals were mottled crimson on a white ground, the margin being shaded purple. The labellum was similarly coloured although without the purple suffusion. All three were strongly frilled. The result of crossing *O.* 'Gorizea' with *O. crispum*. Exhibited by S. Tharp, Esq., 10 Farm Lane, Purley.

Odontoglossum 'Tordonia' var. 'Sydney,' A.M. June 26, 1951. The arching spike bore nine flowers of good form and substance, each 4 inches in diameter. The petals, sepals and labellum all resembled one another, being white in colour, faintly flushed with pale rose, spotted with garnet brown and slightly frilled. The result of crossing *O.* 'Clydonia' with *O.* 'Toreador.' Exhibited by S. Tharp, Esq., 10 Farm Lane, Purley.

Odontoglossum 'Torican,' A.M. June 26, 1951. There were five flowers in the spike, each 4½ inches in diameter. The sepals, petals and labellum were heavily mottled with purple maroon on a white ground

and had fimbriate margins. The result of crossing *O.* 'Pelican' with *O.* 'Toreador.' Exhibited by S. Tharp, Esq., 10 Farm Lane, Purley.

Odontoglossum 'Tromar' var. 'The Spinney' A.M. June 12, 1951. The spike was made up of 5 flowers of good form and substance, the sepals, petals and labellum being garnet coloured with an irregular frilly white margin. The result of crossing *O.* 'Trogan' with *O.* 'Maricon.' Raised by Messrs. Charlesworth and exhibited by Lt.-Col. F. E. Griggs, The Spinney, Chislehurst, Kent.

Odontoglossum 'Welland' A.M. March 20, 1951. The spike bore seven flowers, each 3½ inches in diameter. The sepals were white mottled with crimson and towards the tip shaded light purple. The petals and labellum were white mottled with crimson only, all were slightly frilled. The result of crossing *O.* 'Iden' with *O. crispum*. Exhibited by S. Tharp, Esq., 10 Farm Lane, Purley, Surrey.

Odontonia 'Garda' var. 'Magnificent' F.C.C. December 4, 1951. The spike consisted of three open flowers and four buds. The flowers were of exceedingly good form and substance, 4½ inches in diameter with sepals, petals and labellum of brownish-crimson attractively marked with white. The petals and labellum were slightly frilled. The result of crossing *O.* 'Mirope' with *Odontoglossum* 'Proteus.' Raised and exhibited by Messrs. Charlesworth & Co. Ltd., Haywards Heath.

Sophrolaeliocattleya 'Autumn Queen' A.M. November 6, 1951. The spike consisted of two flowers each 4 inches in diameter with burnt orange petals and sepals, and labellum of crimson veined with purple and shaded with orange towards the centre. Both the petals and labellum were frilled. The result of crossing *Slc.* 'Anzac' with *C.* 'Burnham.' Exhibited by R. Strauss, Esq., Stonehurst, Sussex.

Vanda coerulea var. 'Blue Moon' A.M. September 11, 1951. The plant carried a magnificent spike of twelve flowers, each being 4 inches in diameter, the margins of the petals slightly undulate. Both petals and sepals were pale lavender coloured with netted markings of violet and a suffusion of this colour on the margins. The labellum was uniformly shaded with deep violet. Exhibited by S. Farnes, Esq., Ashcroft, East Grinstead.

BOOK NOTES

"Alpine Plants under Glass." By Royton E. Heath. Illus. 171 pp. (John Gifford Ltd.) 12*s*. 6*d*. net.

A child once said of a gift book, "It tells me more about penguins than I am interested in knowing." No such criticism can be levelled against *Alpine Plants under Glass*. From the first page to the last the interest of the reader is sustained and one closes the book wishing that more had been told about these particular "penguins." Clear plans and directions are given for the building, ventilation, shading etc. of Alpine House, frames, plunge beds and—dare one mention it?—the heating of the Alpine House. But can the maintaining of a temperature of 32° be described as "heating"? The reviewer, also a grower of alpines under glass, keeps her Alpine House at 32° with the result that damping off and Botrytis, two former winter enemies, are now completely overcome, and as Mr. Heath says, the damage so often caused by frost to fragile root terminals need no longer be feared. But it must be noted that the author does not insist that this exclusion of frost is absolutely essential, many growers are most successful in the growing of alpines in cold frames and even in plunge beds with no protection except a Dutch light or "Windolite." Propagation, composts, cultivation, pests and

exhibiting are all dealt with so clearly that the beginner with no previous knowledge of this branch of gardening would have every hope of success if he carried out the directions intelligently. The experienced grower, too, will find many useful suggestions and possibly the clue to past failures and future successes. Mr. Heath is a busy man with little time for gardening except at weekends yet a glance at the photographs of his alpines which illustrate the book, to say nothing of the many well-grown plants he brings to the Shows of the Alpine Garden Society are convincing proof that he can guide us on to the path he has already reached through trial and error.

It is a pity the pages devoted to the lists of suitable plants are peppered with the capital letters N.O. instead of following the usual custom of leaving it to be understood that the name in italics following the name of the genus indicates the Natural Order. The constant repetition of the capitals produces an ocular distraction and mental irritation. But this is a very minor criticism of an excellent little book which should be on the bookshelf of all growers of alpine plants, for it is a book to own not to borrow.

GWENDOLYN ANLEY

"Sweet Peas, their History, Development and Culture." By Chas. W. J. Unwin. ix + 180 pp. Illus. (Heffer, Cambridge.) *7s. 6d.*

Although this book is a third edition of a volume first published in 1926, it has in fact been completely rewritten, re-illustrated and generally brought up to date. It gives a most complete picture of the Sweet Pea from its early history and development, through all stages of culture, to seed saving and possible future developments. The chapter on the raising of new varieties is particularly good and can be followed without difficulty even by those who are not *au fait* with Mendelism. Mr. Unwin discusses possibilities of the new Cuthbertson Sweet Peas, although on this matter he rather suspends judgment for the moment. It may well be that the Cuthbertson Sweet Pea will be more useful to the commercial grower than the amateur but Mr. Unwin does not deal with commercial Sweet Pea production in this book. Perhaps one day he will write something for the trade grower as there is a singular lack of literature on this aspect of Sweet Pea growing. Mr. Unwin wisely does not commit himself on varieties but mentions the guidance given by the annual Sweet Pea audit carried out by the N.S.P.S. and also by the trials. This is a valuable reference book for all those who are interested in any aspect of Sweet Pea growing, and the chapters on the development of the flower from its original form to that of the present day are particularly interesting.

N. S. LIVERMAN

"Camellias and Common Sense." By Claude Chidamian. 124 pp. Illus. (Richard Publishing Company, Los Angeles). $3.50.

This book comes at a time when interest in this genus of plants was never greater. Since it has been realized that Camellias are hardy flowering shrubs suitable for lime-free woodland plantings, their popularity has increased considerably. The author, Claude Chidamian, is one of the leading specialists of America and his wide experience has qualified him to write a practical "Common Sense" book of the utmost value in a most pleasing understandable manner.

Mr. Chidamian is editor of the Southern California Camellia Society's Bulletins and most of his experience has been gained in that part of the world, yet his book with its excellent knowledge should be as welcome to Camellia lovers in this country as it is to those in America. The opening chapter deals adequately with Camellia geography followed by interesting chapters on Camellias in the home and garden, selecting Camellias, planting, practical Camellia culture, propagation, pest and diseases.

The author informs us that there are probably three thousand distinct named varieties of Camellias in cultivation at the present time and that two thousand of these are grown in America with large numbers of new introductions being added each season. He is fully conscious of the existing confusion in Camellia nomenclature which emphasizes the importance of international co-operation to endeavour to rectify the muddle.

The colour illustrations are one of the features of the book, being almost true to life and well up to the best traditions of American colour photography, Shirlea Hatcher's drawings are most instructive. Yes, Mr. Chidamian's book with its 124 pages will find a place in my bookcase and will also make a welcome present to any Camellia lover.

FRANCIS HANGER

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To Messrs. W. H. Rogers & Son, Eastleigh, for an exhibit of dwarf conifers.
To Messrs. D. Stewart & Son, Ltd., Ferndown, for an exhibit of flowering and evergreen shrubs.
To Mr. F. Street, Woking, for an exhibit of flowering trees and shrubs.
To Messrs. F. Toynbee, Ltd., Barnham, for an exhibit of Heaths and evergreen shrubs.
To Messrs. J. Waterer, Sons & Crisp, Ltd., Twyford, for an exhibit of shrubs and rock garden plants.
To Mr. G. G. Whitelegg, Chislehurst, for an exhibit of flowering shrubs and conifers.
To Messrs. Winkfield Manor Nurseries, Ltd., Ascot, for an exhibit of rock garden plants and shrubs.
To Messrs. Wm. Wood & Son, Ltd., Taplow, for an exhibit of flowering trees and shrubs.
To Messrs. E. J. Woodman & Sons, Pinner, for an exhibit of flowering trees and shrubs.

Banksian Medal

To Lt.-Col. L. H. Brammall, Salisbury, for an exhibit of rock garden plants and shrubs.
To Messrs. East Lodge Gardens, Enfield, for an exhibit of rock garden plants.
To Messrs. Kew Topiary Nurseries, Ltd., Richmond, for an exhibit of clipped trees.
To Messrs. Maxwell & Beale, Ltd., Broadstone, for an exhibit of flowering shrubs.
To Messrs. M. Prichard & Sons, Ltd., Christchurch, for an exhibit of shrubs and rock garden plants.
To Queenswood School, Hatfield, for an exhibit of *Echeveria retusa*.

Award of Merit

To *Acacia dealbata* var. 'Arthur Dutton' as a flowering shrub for the greenhouse (votes unanimous), from Messrs. A. F. Dutton, Ltd., 20 Tavistock Street, Covent Garden, London, W.C.2. (Raised and grown by M. Marcel Tournaire, Boulevard Leader, Cannes, France).
To *Erica* × *darleyensis* var. 'Arthur Johnson' (*E. carnea* var. 'Ruby Glow' × *E. mediterranea* var. *hibernica*), as a hardy flowering shrub (votes 12 for, 4 against), from A. T. Johnson, Esq., Bulkeley Mill, Tyn-y-Groes, Conway, N. Wales.

Other Exhibits

Crocus sp., exhibited by M. Ogilvie-Grant, Esq., 71 Kew Green, Surrey.
Ilex latifolia, exhibited by J. L. Richardson, Esq., Prospect House, Waterford.
Primula × *kewensis*, exhibited by Mrs. R. Rutter, Plymtree, Nr. Cullumpton, Devon.
Sparmannia africana, exhibited by Messrs. Craigwell Nurseries, Feltham.
Sycopsis sinensis, exhibited by G. L. Pilkington, Esq., Greyswood Hill, Haslemere.

ORCHID COMMITTEE—Mr. Gurney Wilson, F.L.S., V.M.H., in the Chair, and nineteen other members present.

Awards Recommended:

Silver Banksian Medal

To Messrs. Charlesworth & Co., Ltd., Haywards Heath, for an exhibit of Orchids.
To Messrs. Sanders (St. Albans) Ltd., St. Albans, for an exhibit of Orchids.

First Class Certificate

To *Cymbidium* 'Pearlbel' (*C.* 'Pearl' var. 'Mastif' × *C.* 'Mirabel') (votes unanimous), exhibited by Messrs. McBean's Orchids Ltd., Cooksbridge, Sussex.

Award of Merit

To *Cymbidium* 'Almerelda' Dorset var. (*C.* 'Alexanderi' Westonbirt var. × *C.* 'Esmeralda,' Hankey's var.) (votes 14 for, 1 against), exhibited by Messrs. The Dorset Orchids Ltd., Plush, Dorset.
To *Odontoglossum* 'Purple King' Stonehurst var. (votes 14 for, 0 against), exhibited by R. Strauss, Esq., Stonehurst, Ardingly, Sussex.

Cultural Commendation

To Messrs. the Dorset Orchids Ltd., for a fine plant of *Cymbidium* 'Alrita' Dorset var. (votes 15 for, 0 against), exhibited by Messrs. The Dorset Orchids Ltd., Plush, Dorset.

NARCISSUS AND TULIP COMMITTEE—Mr. E. A. Bowles, F.L.S., F.R.E.S., V.M.H., in the Chair, and fourteen other members present.

Awards Recommended:

Silver Banksian Medal

To Messrs. Zandbergen-Terwegen, Sassenheim, Holland, for an exhibit of Daffodils in pans and bowls.

Other Exhibits

Narcissus Bulbocodium var. *tannanicus*, shown by F. R. Waley, Esq., "Wavertree," Mount Harry Road, Sevenoaks.

Narcissus pumilus, shown by Messrs. R. Wallace & Co., The Old Nurseries, Tunbridge Wells.

JOINT ROCK GARDEN PLANT COMMITTEE—Col. F. C. STERN, O.B.E., M.C., F.L.S., V.M.H., in the Chair, and 13 other members present.

Arising out of the previous Minutes:

The plant exhibited on October 23, 1951, by Messrs. Kibble and Clare as *Sedum* sp. (L. and S. 19626) has been identified at the British Museum as *Sedum Hobsonii*.

Award Recommended:

Cultural Commendation

To the Curator, Royal Botanic Gardens, Kew, for a well-flowered pan of *Cyclamen orbiculatum*.

Other Exhibit:

Crocus Sieberi from The Curator, Royal Botanic Gardens, Kew.

MARCH 11, 1952

SCIENTIFIC COMMITTEE—Mr. E. A. BOWLES, M.A., F.L.S., F.R.E.S., V.M.H., in the Chair, and seven other members present.

Cyclamens for naming.—Professor Weiss showed three Cyclamens of which he desired to learn the names. The Chairman examined these and identified them as (1) *C. orbiculatum*, (2) *C. orbiculatum* var. *coum*, (3) *C. orbiculatum* var. *coum* f. *roseum*. He explained that the var. *coum*, usually regarded as a species, is in reality a garden form of *C. orbiculatum* distinguished by the lack of marbling in its leaves.

Abnormal Snowdrop flowers.—The Committee examined two twin-flowered specimens of Snowdrop submitted by Mrs. N. G. Thompson, of Escrick, York. In one the flowers were perfect, although their pedicels were fused for almost the whole of their length; in the second the two flowers were fused to the top of the ovary, forming one monstrous flower with 10 tepals, 11 stamens and 2 styles. Mrs. Thompson stated that she had eleven bulbs of this Snowdrop, of which about half had thrown 2-flowered scapes in each of the past three years.

The Chairman observed that certain species of Snowdrop not infrequently produced two-flowered scapes; but that fasciated examples like the ones exhibited were unlikely to occur regularly.

Mr. Gould showed a further case of fasciation in Snowdrops. A plant of *Galanthus nivalis* grown at Wisley carried two scapes which were completely fused, and which produced at different levels two independent one-flowered spathes.

Variation in Trillium grandiflorum.—Mr. W. Miles, of Ingersoll, Ontario, showed the Committee a number of photographs of colonies of *Trillium grandiflorum* growing wild in woodlands near his home, and illustrating a wide range of variation in the colour and form of the perianth-segments and the subtending three-leaved involucre.

The photographs showed normal specimens, others with 6 white tepals, with 6 green tepals, with 3 green-striped white tepals; with enlarged leafy outer tepals; some with the involucral leaves petiolate, others lacking the involucre. Mr. Miles estimated that in the locality where the photographs were taken, 75 per cent. of the flowers were abnormal. Mr. Stearn referred to the occurrence of similar variants in Paris and other genera of the Liliaceae.

Draba sp. *for naming.*—A pan of a species of *Draba* (? *andina*), grown at Wisley, was referred from the Joint Rock Garden Plant Committee, for verification of name. The Committee recommended that dried specimens should be submitted to Dr. Rollins of The Gray Herborium, Cambridge, Mass., who has made a special study of the genus.

FRUIT AND VEGETABLE COMMITTEE—Mr. F. A. SECRETT, C.B.E., F.L.S., V.M.H., in the Chair, and thirteen other members present.

Exhibits

Apple Seedling from the Forest and Orchard Nurseries Ltd., Milbury Heath, Falfield, Glos.

Apple Seedling from the Horticultural Adviser, Berkshire County Council, Agricultural Education Department, 22 The Forbury, Reading.

FLORAL COMMITTEE A—Mr. G. W. LEAK, V.M.H., in the Chair, and twenty-three other members present.

Awards Recommended:

Silver-gilt Banksian Medal

To Messrs. Dobbie & Co. Ltd., Edinburgh, for an exhibit of Daffodils, Tulips and Hyacinths.

To Messrs. R. Wallace & Co., Tunbridge Wells, for an exhibit of Daffodils, Tulips, Crocuses, etc.

Silver Flora Medal

To Messrs. Allwood Bros., Ltd., Haywards Heath, for an exhibit of Carnations.

To Messrs. R. H. Bath, Ltd., Wisbech, for an exhibit of Daffodils, Tulips, Crocuses, etc.

To Messrs. Walter Blom & Son, Ltd., Watford, for an exhibit of Crocuses, Daffodils, etc.

To Messrs. P. de Jager & Sons (London), Ltd., London, for an exhibit of Freesias.

Silver Banksian Medal

To Mr. J. Amand, Holbeach, for an exhibit of Roses, Lilacs, Hippeastrums, etc.

To Messrs. Barr & Sons, Taplow, for an exhibit of Daffodils, Crocuses, dwarf Irises, etc.

To Messrs. R. H. Bath, Ltd., Wisbech, for an exhibit of Freesias.

To Messrs. W. Fromow, Ltd., Chiswick, for an exhibit of Daffodils, Hyacinths, Tulips.

To Messrs. Wakeley Bros. & Co., Ltd., North Mymms, for an exhibit of Daffodils, Crocuses, Hyacinths, etc.

Flora Medal

To Messrs. Blackmore & Langdon, Bath, for an exhibit of Polyanthuses and coloured Primroses.

To Messrs. J. Cheal & Sons, Ltd., Crawley, for an exhibit of coloured Primroses, Daffodils, Tulips.

Banksian Medal

To Mr. C. Newberry, Knebworth, for an exhibit of Polyanthuses, Anemones, etc.

Other Exhibit

Seedling blue Primrose from Messrs. J. Cheal & Sons, Ltd., Crawley, (to be seen again).

FLORAL COMMITTEE B—Lord ABERCONWAY, C.B.E., LL.D., D.Sc., V.M.H., in the Chair, and twenty-one other members present.

Awards recommended:

Silver-gilt Banksian Medal

To Messrs. Six Hills Nursery, Ltd., Stevenage, for an exhibit of Saxifrages and Primulas.

To Messrs. J. Waterer, Sons & Crisp, Ltd., Bagshot, for an exhibit of flowering shrubs.

Silver Flora Medal

To Messrs. Hillier & Sons, Winchester, for an exhibit of flowering shrubs and rock garden plants.

To Messrs. L. R. Russell, Ltd., Windlesham, for an exhibit of greenhouse foliage plants.

Silver Banksian Medal

To Messrs. J. Cheal & Sons, Ltd., Crawley, for an exhibit of flowering and evergreen shrubs.

To Messrs. Craigwell Nurseries, Feltham, for an exhibit of greenhouse plants.

To Messrs. Haskins Bros., Ltd., Bournemouth, for an exhibit of flowering shrubs.

To Mr. Frederick Street, Woking, for an exhibit of flowering shrubs.

Lindley Medal

To the Giant Snowdrop Co., Chalford, for an exhibit of Snowdrops.

Flora Medal

To Messrs. Burkwood & Skipwith, Ltd., Kingston, for an exhibit of flowering and evergreen shrubs.

To Mr. K. W. Harle, Lower Basildon, for an exhibit of succulents.

To Messrs. W. E. Th. Ingwersen, Ltd., East Grinstead, for an exhibit of rock garden plants.

To Messrs. H. G. & P. M. Lyall, Watford, for an exhibit of rock garden plants.
To Messrs. Old Court Nurseries, Ltd., Malvern, for an exhibit of herbaceous and rock garden plants.
To Messrs. D. Stewart & Sons, Ltd., Ferndown, for an exhibit of flowering shrubs.
To Messrs. Winkfield Manor Nurseries, Ltd., Ascot, for an exhibit of rock garden plants.
To Messrs. Wm. Wood & Son, Ltd., Taplow, for an exhibit of flowering shrubs.

Banksian Medal

To Messrs. East Lodge Gardens, Enfield, for an exhibit of rock garden plants.
To Messrs. Hollybush Nurseries, Harpenden, for an exhibit of rock garden plants.
To Messrs. Kew Topiary Nursery, Ltd., Richmond, for an exhibit of clipped Box and Bay trees.
To Mr. M. P. Kooper, Ferndown, for an exhibit of rock garden plants.
To Messrs. MacPenny Nurseries, Bransgore, for an exhibit of flowering shrubs and rock garden plants.
To Messrs. M. Prichard & Sons, Ltd., Christchurch, for an exhibit of rock garden plants and shrubs.
To Messrs. W. H. Rogers, Southampton, for an exhibit of dwarf conifers.
To Messrs. D. Stewart & Sons, Ltd., Ferndown, for an exhibit of rock garden plants.
To Mr. G. G. Whitelegg, Knockholt, for an exhibit of rock garden plants.

Award of Merit

To *Ilex latifolia*, as a hardy, ornamental foliage and berried tree (votes 15 for, 2 against), from the Rt. Hon. the Earl of Bessborough, Stanstead Park, Rowland's Castle, Hants.

Other Exhibits

Edgeworthia chrysantha, exhibited by the Commissioners of Crown Lands, The Great Park, Windsor.
Quercus semecarpifolia, exhibited by Messrs. Hillier & Sons for C. H. D. Coates, Esq., Liss, Hants.

NARCISSUS AND TULIP COMMITTEE—Mr. E. A. Bowles, F.L.S., F.R.E.S., V.M.H., in the Chair, and twelve other members present.

Awards Recommended:

Silver-gilt Banksian Medal

To Messrs. Walter Blom & Sons, Ltd., Watford, Herts., for an exhibit of Tulips in bowls.

Silver Flora Medal

To the Trenoweth Valley Flower Farm, St. Keverne, Cornwall, for an exhibit of Daffodils.

Silver Banksian Medal

To Mr. Alec Gray, Treswithian Daffodil Farm, Camborne, Cornwall, for an exhibit of Miniature Daffodils.

JOINT ROCK GARDEN PLANT COMMITTEE—Col. F. C. Stern, O.B.E., M.C., F.L.S., V.M.H., in the Chair, and twelve other members present.

Awards Recommended:

Award of Merit

To *Primula bracteosa* as a hardy flowering plant for the rock garden and alpine house (votes 11 for, 0 against), from Mrs. D. E. Saunders, Husseys, Green Street Green, Farnborough, Kent.

To *Saxifraga Burseriana* var. *crenata* as a hardy flowering plant for the rock garden and alpine house (votes 11 for 0 against), from The Director, R.H.S. Gardens, Wisley, Ripley, Surrey.

To *Saxifraga* 'Mother of Pearl' as a hardy flowering plant for the rock garden and alpine house (votes 10 for, 0 against), from The Director, R.H.S. Gardens, Wisley, Ripley, Surrey.

Other Exhibits:

Draba andina (which was referred to the Scientific Committee for confirmation of the name) and *Saxifraga Burseriana* var. *major*, from The Director, R.H.S. Gardens, Wisley, Ripley, Surrey.

Anchusa caespitosa (which the Committee would like to see again after it has been in flower for a fortnight) and *Dionysia curviflora* from C. H. Hammer, Esq., The Old Rectory, Boreham, Essex.

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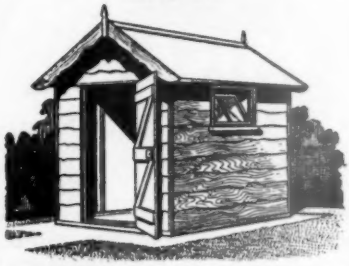

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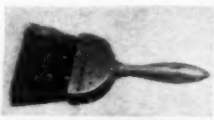

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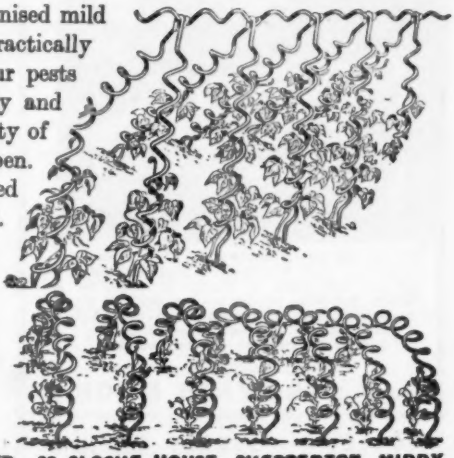

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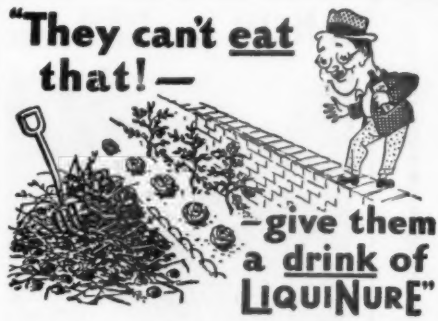

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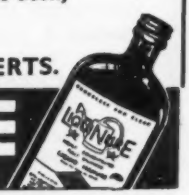

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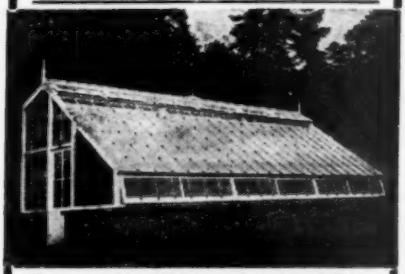

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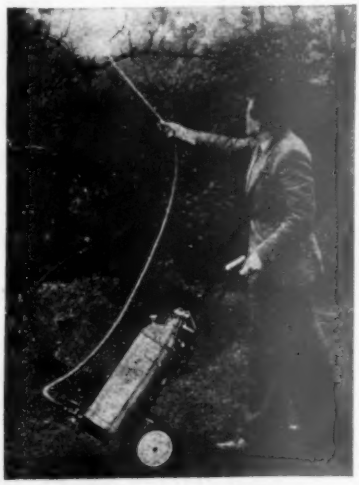

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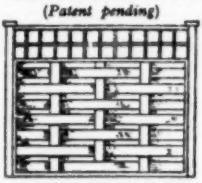

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